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## BACTERIA AND THEIR ROLE IN NATURE.

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Few subjects in the realm of science have awakened so great an interest or advanced so rapidly as bacteriology. A few decades ago and it was hardly recognized as a distinct branch of botany; now it is considered a science in itself. It has its professors and its laboratories, its apparatus and its literature, and a man who would now enter its field must go through a special course of training in order to master the delicate technique which is the key to its mysteries.

Microbes have not only awakened the interest of the public generally, but have even penetrated the realms of fiction, and novelists have used them, believing it a much more striking and original *dénouement* to "remove" a character by means of a cholera culture than by the historic dirk or vulgar poison bowl.

The reason for this great popular interest in the science lies, of course, in its connection with practical medicine. The lay public follows with intense interest, though afar off, the advances of Medicine, and let us but discover a new cause of disease or a new cure, and the newspapers announce it with double-headed columns and the people read it eagerly. The interest in bacteria lies largely also in the fascination with which people regard the presence all around them of

these invisible enemies, which apparently only await a favorable opportunity to enter their bodies and work havoc there. That this dread of these minute enemies is justified, there is no doubt, but it is equally true that many of them are not only not enemies, but valuable friends and allies which con-

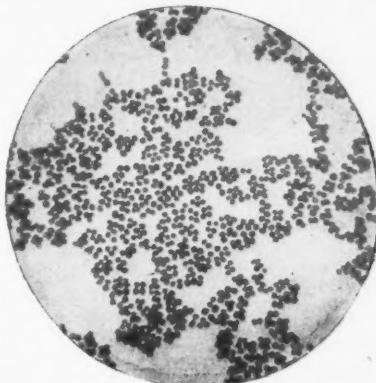


FIG. 1. A LARGE MICROCOCCUS FOUND IN AIR.

tribute very materially to our welfare, in rendering the world habitable, by breaking up all organic filth and bringing it back to such a condition that it may be used for food by the higher plants and thus converted into food for animals. Not only in this most important rôle are they useful, but in many minor ways, so that we find that

in the ripening of cheese, the flavoring of butter, and even in the curing of tobacco, they are important agents, and we may with reason ask ourselves, would life be worth living without them?

People have a tendency to think that what is living and dangerous must be an animal; if, in addition, it is minute, it must be an insect, and insects are detestable. Bacteria have thus been nick-named insects, and are abhorred accordingly. The dog has been given a bad name, and it seems useless to plead for him. These minute organisms, however, are not animals, but plants so low in the scale of

micrococcus. In another, they are rod-like, and the name bacillus is applied (Fig. 2); in another, spiral, and we have the name spirillum (Fig. 3.) In all cases, however, they are characterized by their extreme minuteness. The bacillus which causes tuberculosis, for example, is so slender that 125,000 of them may lie side by side in an inch, and of the largest which we know and which has been called *bacillus matherium* on account of its comparatively enormous size, only 10,000 will lie side by side in the same space. It would seem as if little damage could be done by such minute creatures, but they reproduce so rapidly that they make up in numbers for their insignificant size. Their reproduction consists simply in one individual, when it has reached a certain size, dividing into two new ones, and as this, under favorable conditions, may take place every twenty minutes, it is easy to obtain some idea of the enormous rapidity of increase. Even when conditions are such that they only divide every hour, at the end of twenty-four hours the one individual is represented by over sixteen millions. In bacteriological investigations we make use of this rapid multiplication to facilitate our studies, and in much of our work pay only slight attention to individuals, but study the appearances of their colonies, in which they are present in millions. We are able to do this, thanks to Robert Koch, who introduced methods so exact that we now know not only the form and size of multitudes of bacteria, but also the foods upon which they grow, the conditions which affect their growth, and many of the chemical substances formed by them while growing. The chief of these methods is the cultivation of bacteria in nutritive jellies. Every housewife knows that calves' foot jelly, if left in a warm room exposed to the air, will soon putrefy. This putrefaction is due simply to the growth of bacteria in the jelly. Bacteriologists prepare such a jelly by



FIG. 2. A BACILLUS FOUND IN WATER.

vegetable life that we may easily consider them the lowest forms that exist. They may at one time have been higher, but their bad habits of living upon decaying organic matter or upon living animals, has carried the curse with it, which it always does, and they have degenerated. They are none the less plants, however, and form a well-marked sub-division of the plant world, including multitudes of species, each species being separated by definite characters from all the rest. These species are grouped into genera, each genus being given a special name. For instance, in one genus the bacteria are all globular, as in Figure 1, and it is given the name of

adding gelatine to clear beef broth, which supplies in every way the requirements of these plants, and in which the majority of them grow readily. This jelly is poured into a large number of little tubes, a couple of teaspoonfuls in each, and the entrance of bacteria from the air is prevented by plugging the mouths of the tubes with cotton wool, through which they cannot penetrate. As, however, in the process of filling the tubes, bacteria may have entered, it is necessary to render them sterile, and this is done by placing them in a steamer and heating them up to the temperature of boiling water for a short time. When the whole process is complete, we have our tubes filled with a beautifully clear jelly, which will keep indefinitely and which is always ready for use.

Suppose we wish to find out the number and kinds of bacteria in a sample of water. The jelly in such a tube is liquified by heating it gently, a drop of water is thoroughly mixed with the liquid jelly, and the mixture poured out in a thin layer in a little flat glass dish with a cover, which has also been sterilized by heat. This is placed in a warm room, and in the course of forty-eight hours small spots will begin to appear in the jelly. These spots are formed in this way. Let us suppose there were ten bacteria in the drop of water. These ten become widely separated from each other by mixing the water with the jelly and spreading it out in a thin film. Each individual, finding itself surrounded by plenty of food, begins to grow and multiply, so that at the end of forty-eight hours, in place of ten single individuals, we have ten colonies made up of millions of individuals and visible to the naked eye. This is what is called the method of plate culture, and each colony so formed is found to be made up entirely of one specific micrococcus, bacillus or spirillum, as the case may be. By picking up a small quantity of such a culture on

the end of a sterilized needle, we may either study the organism of which it is composed under the microscope, or transfer it to a fresh tube of jelly for further study.

The form of each colony differs widely according to the particular microbe which produces it. Some are clear-cut and circular. Others have ragged edges or push fine projections out into the jelly. Some liquefy the jelly, others do not. Some have brilliant colors, such as orange, red or blue, whilst others are quite colorless. Each microbe produces a colony peculiar to itself, and by the form of this colony we recognize it.



FIG. 3. A SPIRILLUM FROM WATER.

Examples of these colonies are shown in Fig. 4. Should we wish to carry our study farther, we pick up a portion of the colony on our sterilized needle and stab it into the solid jelly in a new tube. This gives rise to a new series of characteristic growths—the growth in stab culture; or we may smear it on the surface of the jelly and so form a smear culture. In Fig. 5 we have a stab culture of the cholera bacillus which has grown for three days, and, it will be seen, is beginning to liquefy the jelly, forming a little pocket at the top of the stab. In Fig. 6 is a smear culture of the bacillus of tuberculosis, the bacteria growing over the whole surface of the jelly.

But we have many other food materials which we may offer these plants, such as beef tea, boiled potatoes, etc., and in each case their growth is characteristic, provided always we keep them free from admixture with other forms, which we are able to do with ease by the method of plate culture, but, as in the case of the higher plants, some forms grow best at one temperature, whilst others best at another, so amongst bacteria we find differences. Those which grow in water or decaying organic matter will grow at the temperature of a moderately warm room, but forms parasitic upon animals require a temperature about that

ence of the cholera bacillus in the intestinal canal, but because when there it grows rapidly, excreting poisons which are absorbed into the system and give rise to the many symptoms of the disease. What is true of cholera is true of all other infectious diseases. It is not so much the microbe itself which we have to fear, as the poisons which it produces.

When we cultivate our bacteria in a warm oven we imitate their growth in the body, and the same poisons are formed in our flasks which would be formed in the body. These poisons we can isolate by chemical means, study their effect upon animals, and discover the best means of combating them. But the curious fact has been made out that, when grown under certain conditions, the bacteria produce the antidote along with the poison, so that by appropriate methods we can separate the two and use them in our experiments.

It will readily be seen that by such methods we may follow very closely the life history of various microbes, tell at what temperatures they are killed, and discover the action of disinfectants upon them.

We have thus made out many interesting facts; how some bacteria require plenty of air in which to grow, while others must have the air rigidly excluded; how some, again, prefer a little sugar in their jelly, others salt, others glycerine, and so on. An interesting example of this has lately been brought to light in the publication of some researches upon influenza. The investigator found that by smearing a little of the nasal discharges from an influenza patient upon jelly, and placing the jelly in the oven referred to above, there appeared colonies of a minute bacillus which he had found in influenza patients. He was overjoyed, but was disappointed when he found that he could follow the growth no further, because all his efforts to transfer one of these colonies to a fresh tube were fruitless. He found

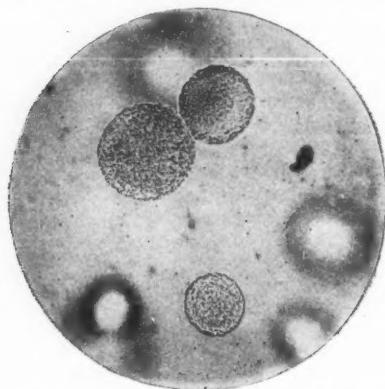


FIG. 4. COLONIES OF THE CHOLERA MICROBE.

of the body to carry on their development. This we provide for by placing our tubes in an oven which is kept constantly at the temperature of the human body, and in which these parasites develop rapidly. All these foods are available for the bacteria, because they have the power of splitting up the compounds of which they are composed, utilizing portions of these compounds to enable them to grow and multiply, and rejecting such portions as they cannot use. These rejected and excreted portions are of immense importance to us, because it is on account of them that bacteria are able to produce disease. Cholera is produced, not by the actual physical pres-

they would grow in the first tube, but they would go no further. It is not necessary to tell all the devices he tried to coax this fastidious bacillus to continue its growth in his jellies—how he modified these jellies, first in this way and then in that, in hopes of finding a suitable medium, always without success, until he hit upon the expedient of smearing the surface of his jelly with a little blood, when, presto! he found that his influenza bacillus would grow beautifully, and he discovered that it required as the most necessary condition of its growth, the haemoglobin or red coloring matter of the blood.

Even if our study of microbes had only given us the facts which we have outlined, we might consider much had been done, but these are only a fraction of the results. Perhaps the most fascinating part of the whole field is that which bears upon the relationship of these minute creations to man and animals. Here it is that we must look for progress in the future which may, possibly, in a few years, completely revolutionize the medical treatment of infectious diseases. And here, indeed, those timid persons who always tremble lest deadly germs of disease may be lurking about them, may receive comfort; for our studies have taught us that the bacteria which we dread are met, as soon as they enter the tissues of our body, by a host of enemies whose business it is to destroy them. The body, in fact, is equipped with a means of defence against all disease germs, and, if conditions were absolutely favorable, would always destroy them. If we examine the blood microscopically, we find it is composed of a colorless fluid in which float multitudes of little red disks, which are called the red blood-corpuscles, and whose duty it is to carry the vivifying oxygen from the lungs to the tissues, and return the carbonic acid gas, the waste material of life, to the lungs again; but here and there amongst these red disks we see a little

white body which is called a white blood corpuscle. The duties of these white blood cells were for a long time not well understood, and even now we do not know all their functions, but we do know that one of their chief functions is to act as scavengers in the blood, picking up waste material wherever found and carrying it away to where it may be got rid of as easily as possible. These white cells are the structures which assist us in our struggle with the microbes, for when they meet them they seize them, killing and digesting them, and if they always perform this duty we have little to fear. From this habit of theirs of

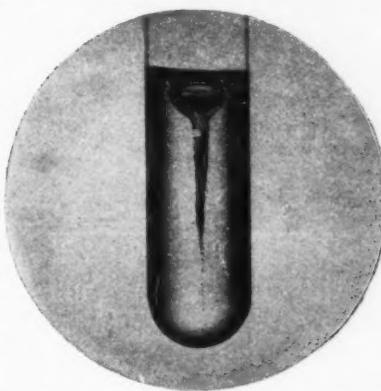


FIG. 5. STAB CULTURE OF CHOLERA, 3 DAYS OLD.  
devouring bacteria we call them phagocytes, and we find that in this rôle they are extremely active, restlessly moving throughout the body and attracted to any spot at which invasion occurs. In Fig. 7 we have three of these phagocytes, which are filled with bacteria. The action of the white blood cells is very different in different diseases, according as the animals are susceptible to the disease or not. In fact, to say that an animal is susceptible is simply to say that these scavengers are not doing their duty. When they are doing it thoroughly, the disease has not a chance to take hold, and the animal is said to be immune. This immunity is frequently

natural and inherited, but in some cases it has been possible to establish an artificial immunity by a process of vaccination, as is done in Pasteur's treatment of rabies, or Haffkine's vaccination against cholera. The production of acquired immunity is one of the most important steps in recent bacteriological work, and it is only a matter of time until the method is extended to all infectious diseases.

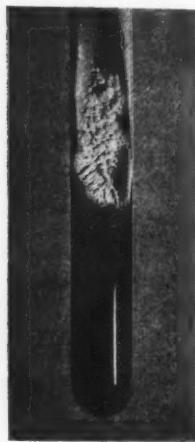


FIG. 6. A SMEAR CULTURE OF THE BACILLUS OF TUBERCULOSIS.

stream, but are strongly attracted to the point of invasion. They swarm to that point, and begin there the warfare against the invader. In cases where animals are not immune, the phagocytes are not attracted, and the bacteria have an opportunity to grow unhindered. Though we do not yet know all the conditions which render the white

blood cells sensitive to these poisons, we do know most of the conditions which destroy this sensitiveness. All influences which lower the vital tone of the body, such as fatigue, cold, bad air, the absorption of foul gases and noxious fumes, hinder the phagocytes in their action and so give an opportunity for disease germs to grow. If we could eliminate the evils of inherited tendencies, give our bodies the best possible chance by obtaining pure air, sunlight and exercise, and at the same time act on Herbert Spencer's dictum, that "he who contaminates his neighbor's atmosphere infringes his neighbor's rights," we would go far towards abolishing infectious diseases.

Bacteriology has made the path of the sanitarian as clear as daylight; it is only the ignorance of the public which places obstacles in his way.

We know that dry air and bright sunlight will destroy the cholera germ in two hours, and diphtheria in very little longer time, whilst in a damp, dark cellar they will remain alive for months; yet people continue to build and live in houses which are damp and dark.

These are some of the broad facts relating to bacteria, facts which are of practical importance to the public.

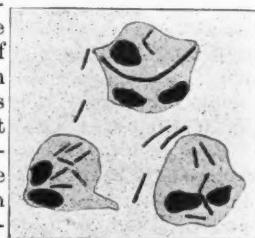


FIG. 7. PHAGOCYTES.



## THE AORTA OF NORTH AMERICAN COMMERCE.

BY CHAUNCEY N. DUTTON.

AN observing man once remarked that by a wise and beautiful provision of Providence the great rivers are all located conveniently for the big cities. A wise man, truly!

Transportation makes the city: in proportion as transportation is good and cheap, the city becomes great and wealthy. The city is a circumstance of topography. Until the invention of a prime mover, which shall give us power without cost, causes the aeroplane to supplant the less soaringly ambitious boat and car, the cities, big and little, must be located where freight can be brought to them the cheapest:—*i.e.*, upon the water courses.

To what extent cheap transportation affects the growth of cities is well illustrated in the following tables, in which a group of six American cities on the upper great lakes is compared with a group of six American cities not sharing the benefits of the cheap lake freights, and with a group of six Canadian cities situated on Lake Ontario and the St. Lawrence River. The comparison covers the population and rate of growth of the cities of the respective groups, as shown in three successive censuses.

### GROUP No. 1—AMERICAN LAKE CITIES.

POPULATION	1870.	1880.	1890.
Chicago .....	298,977	503,185	1,099,850
Buffalo.....	117,714	155,134	255,664
Cleveland .....	92,829	160,146	261,353
*Pittsburg.....	86,076	156,389	238,617
Detroit.....	79,577	116,340	205,876
Milwaukee .....	71,440	115,712	204,468
Totals.....	746,613	1,206,906	2,265,828

### GROUP No. 2—AMERICAN CITIES NOT BENEFITED BY THE LAKE TRANSPORTATION.

POPULATION	1870.	1880.	1890.
St. Louis.....	310,864	350,518	451,770
Cincinnati.....	216,239	255,139	296,908
New Orleans.....	191,418	216,090	242,039
Louisville .....	100,753	123,758	161,129
Rochester.....	62,386	89,366	133,896
Albany.....	69,422	90,758	94,923
Totals.....	951,082	1,125,629	1,380,665

### GROUP No. 3—CANADIAN CITIES ON LAKE ONTARIO AND THE ST. LAWRENCE.

POPULATION	1871.	1881.	1891.
Montreal.....	107,225	140,747	216,650
Toronto .....	56,092	86,415	181,220
Quebec.....	59,699	62,446	63,090
Hamilton.....	26,716	35,961	48,980
Kingston .....	12,407	14,091	19,264
Three Rivers.....	7,570	8,670	8,334
Totals.....	269,709	348,330	537,538

### INCREASE IN POPULATION.

DECades.	1870 to 1880.		1880 to 1890.		1870 to 1890.	
	Actual.	per ct.	Actual.	per ct.	Actual.	per ct.
GROUP No. 1. 6 American Lake Cities. }	460,293	61 2/3	1,058,922	87 3/4	1,519,215	203 1/2
GROUP No. 2. 6 American Cities. }	174,547	19 4/10	255,036	22 2/3	429,583	45
	1871 to 1881.		1881 to 1891.		1871 to 1891.	
GROUP No. 3. 6 Canadian Cities. }	78,621	29	189,208	54 3/10	267,829	99 3/10

\* Pittsburg is classed here with the upper lake cities, because its manufactures and growth, especially its iron industry depend almost entirely on the cheap lake freights, without which Pittsburg would be an unprogressive town; Rochester, accessible to Lake Ontario craft, does not so depend on lake transportation for material for her industries.

The tables show that in 1870 the six American lake cities were 204,469 behind the six other American cities taken for comparison; that in one decade they took the lead by 81,277; and that in the succeeding decade their lead increased to 885,163; their percentage of increase being  $4\frac{1}{2}$  times as great as that of the other six American cities.

The phenomenal growth of the group of lake cities, coincident as it is with the extraordinary development of the lake marine, is mainly due to the fact that their position enabled them to apply advantageously to their transportation problem the latest technical improvements in steel-making and engine building. The prosperity of the lake cities is due to cheap steel ships and high-economy steam engines, factors which did not affect the growth of the American cities of the second group, because the character of river navigation in the United States is practically unimproved, and does not seem capable of material improvement until the people take hold of it in earnest and inaugurate a new and comprehensive system in place of the present lack of system.

The position of the group of Canadian cities in the comparison is intermediate, but withal very favorable. They did not, to be sure, share equally with the cities of the upper lakes in the benefits of cheap transportation, as influenced by cheap steel and triple expansion engines. Still their rate of growth was more than twice as great as that of the American cities of the second group, and nearly half as great as that of the American lake cities.

As it is a well known fact that the tonnage and class of shipping on Lake Ontario and the St. Lawrence have not developed to any great extent as compared with the shipping of the upper lakes, the cause of the large growth of the Canadian cities must lie elsewhere.

Analysis of the figures shows that of the total increase of the group of Can-

adian cities in the decade ending in 1881,—which was 78,621,—the increase of Montreal and Toronto was 64,445, or 82 per cent. of the total, while in the succeeding decade, out of a total increase of 189,208, these two cities increased 170,108, or  $89\frac{1}{3}$  per cent. of the total; while for the two decades covered by comparison, out of a total increase of 267,829, the increase of the two leading cities was 234,553, or  $87\frac{6}{10}$  per cent. of the total.

Comparing increase by decades, we find that out of 267,289, the total increase for twenty years, 78,621, or  $29\frac{1}{3}$  per cent. was the increase of the first decade; while the increase for the second decade was 189,208, or  $70\frac{2}{3}$  per cent. of the total. Such a great concentration of population, confined to these two cities and to the decade ending 1891, must have had a very potent cause. That cause was undoubtedly the building of the Canadian Pacific Railway, of which Montreal and Toronto are the principal eastern terminals; and by which the trade territory accessible and tributary to the two cities was vastly extended. The sudden broadening of the fields of commerce, the great and rapid augmentation of the armies of customers, caused the two cities to "boom" in a manner remarkable even on this continent. Now the "boom" is over; and by contrast the jog-trot of advancement by steady natural increase and improvement seems very tame indeed.

Is there any way by which the "boom" can be revived? This question must be anxiously put by many, especially by those who "boomed" too much. Let the belated boomers pluck up heart of hope. There are ways by which the boom can be brought back, and with quadrupled vigor, and in a form which will benefit not alone the two cities of Montreal and Toronto, but the entire Dominion of Canada.

The last boom resulted from improved rail transportation between the eastern terminal cities and the interior

of Canada. The coming boom will be induced by improving the facilities of the Canadian provinces for communication by water transportation with one another and with the United States and the countries and islands further south; it will follow the marriage of the St. Lawrence and Lake Ontario with the upper great lakes and with the waters of the coast by deep and speedy canals equipped with the latest and best improvements, by means of which the largest steamers of the lake and coasting trades can go and come quickly and profitably. Such a project will vastly extend the trade boundaries of central Canada and multiply the number of her customers by bringing her ports into cheap and rapid communication with the populous and prosperous states and countries now separated from her by high transportation rates; and will thereby open new and boundless opportunities to her citizens and cause her cities and towns to "boom" uninterruptedly without danger of relapse.

To bring about this most desirable state of things; to provide facilities for reaching advantageously the great centres of commerce and production—the upper great lakes and New York harbor, which are the great gateways westward and southward—and to open wide the St. Lawrence gateway eastward, it is necessary to connect Lake Ontario and the St. Lawrence with the upper lakes, to perfect communications with the lower St. Lawrence, and to open navigation to the Hudson; it is necessary to make the St. Lawrence channels broad and deep, to enlarge and improve the existing canals and build the necessary new ones, and to equip them with the best possible number of quick-acting, high-lift locks, with the best towing plants, and with the best facilities for handling freight at the terminal points. The entire project must be conceived and executed in such a spirit that it shall lead the march of progress—not lag hopeless in the rear—step so far be-

yond the mere necessities of the present as to anticipate the future, and, for years to come, set the limits to the tonnage of domestic freight-carriers, so that the largest vessels navigating the lakes and coastal waters may enter and traverse the connecting canals and the St. Lawrence, and there receive and discharge freights with practically the same facility and rapidity that attends like operations in the upper lakes.

Such speed is obviously unattainable with Leonardo Da Vinci's lock, which, since the fifteenth century, has been the reliance of hydraulicians for connecting navigations at different levels. We must leaven hydraulics with the nineteenth century leaven. Water, the ponderous, slowly moving liquid, must give place, as the motive agent of the locks, to air, the light and quickly moving fluid. Stone must give place to steel. Lifts of 10 feet must be replaced with lifts of 100 feet and upwards, and the ditch—the long accepted ideal of the canal—must make room for the artificial river. Speed! Speed! Speed! must be the motto. What is slow must go. Delay is fatal to cheapness. A vessel costs *so much a minute*, and every minute lost is just so much added to the freight-cost, and just so much of a handicap on the commerce of the districts against which the delay operates.

How much a small and slow canal handicaps the district depending upon it for transportation facilities is shown by the example of the Welland Canal, the dimensions of which are too small to admit the large lake freighters. Freight bound down to Lake Ontario ports must therefore be carried in small vessels which cost more to operate, relatively to their tonnage, than vessels of the larger class. Thus freights to Ontario ports are handicapped by the higher cost of carriage in the smaller vessels, say from Duluth or Chicago to Port Colborne; and the handicap is increased by the detention in the canal, by the tolls, by

the inferior facilities for handling cargo in the smaller port, by the scarcity of return cargoes in Lake Ontario, and by the higher cost of carrying the return cargo after it is obtained, which items so swell the handicap from which Lake Ontario trade suffers that it is little wonder that the bulk of the freight is discharged in Lake Erie ports, and that not two per cent. passes down to Lake Ontario.

This fatal handicap on the commerce of Lake Ontario and the St. Lawrence is a grievance of long standing, dating from the completion of the Erie Canal. The reports of the Canadian Government show that for the decade ending with 1873 it averaged \$1.85½ per ton on the eastward trip; and for the succeeding decade, ending '83, it averaged \$1.21¾ (see report of R. C. Douglass, Assistant Engineer to Hon. John H. Pope). While it grows less in amount from year to year, it remains a tolerably constant proportion; and will, until the Welland Canal is made large enough to accommodate the largest lake freighters and is equipped with the least number of quick-acting, high-lift locks, so that the detention of vessels using it is reduced to a minimum.

In the following tables the handicap on Lake Ontario is analyzed, the comparison being based on the *actual cost* of handling freight, no profit being allowed to vessels or railroad. The rate for the large vessel is authentic, based on actual performance, for a season, of a 2,800 ton steamer; for the smaller steamer the figures are necessarily approximate, no data as to the actual performance of a 1,500 ton steamer having been published for several years. That the calculation is very close to the truth may be inferred from the fact that the large steamer earned  $1\frac{7}{10}$  times her operating expenses; and her gross earnings being necessarily limited to the rate at which inferior boats could carry freight without loss, it naturally follows that the smaller vessels cost more to operate in

about the proportion assumed in this calculation.

#### COMPARISON OF FREIGHTS.

##### DULUTH TO BUFFALO AND DULUTH TO KINGSTON.

###### DULUTH TO BUFFALO.

3,000 ton vessel averaging 12½ miles per hour.
82 hours steaming,
6 hours detention at Soo Lock.

88 hours @ 57/100 c. per ton per hour.....	\$0.50 per ton.
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###### DULUTH TO KINGSTON.

1,500 ton vessel averaging 10 miles per hour.
102 hours steaming to Port Colborne,

6 hours detention at Soo.
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108 hours @ ¾ c. per ton per hour. \$0.81 per ton
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Handicap of small vessel in up- per lakes .....	0.31 per ton.
18 hours in Welland Canal,	
17 hours in Lake Ontario.	

35 hours @ ¾ c. per ton per hour. \$0.26½ per ton.
Tolls ..... .10 "

Handicap on Kingston, down trip .67½ "
--

In case the vessel finds no return cargo in Lake Ontario, as happens in nine cases out of ten, she has to run light to Buffalo and there get a return cargo, say of coal; and the handicap is swelled by the following items:-

17 hours in Lake Ontario.
18 " " Welland Canal.
2 " to reach Buffalo.

37 " @ ¾ c. per ton per hour \$0.27½ per ton.
Tolls ..... .10 "

Handicap of westward trip from Buffalo .....
.31 "

Handicap of eastward trip .....
.67½ "

Total handicap against King- ston, as compared with Buf- falo .....
\$1.36 "

These figures, unpleasing as they may be, are within the truth; as the 1,500 ton vessel costs over one-third more to operate, relatively to its capacity, than the 3,000 ton vessel: and, besides, no additional port dues, &c., have been reckoned, in case the vessel has to seek a return cargo at some Lake Erie port. Further, no charge has been reckoned for lighterage, or for the higher cost of discharging and

receiving cargo at the smaller port, where the terminal facilities are necessarily inferior.

The comparison as it stands is a severe enough condemnation of inadequately planned transportation facilities.

The handicap against Kingston, \$1.36, will pay the cost of carrying a ton of freight 358 miles on a first-class railroad, or from Buffalo to within 82 miles of New York City. It is no wonder, then, that the great freight movement is from the Lake Erie ports to the seaboard by rail, and that the Welland Canal has failed to affect the direction of the continental freight movement, or to reduce the cost of freights, and is a local benefit merely, in spite of its enormous cost and the high character of the engineering and technical skill displayed in its construction.

As I understand the question, it is an example of the incapacity of the European mind to grasp American conditions. Some twenty years ago a number of eminently respectable, or respectably eminent gentlemen came across the water, sat in council on a question entirely beyond their comprehension, and recommended something just half good enough to be of any particular value in satisfying conditions of which the said eminent gentlemen were entirely ignorant. The people of Canada have loyally paid out their hard-earned money, and executed the works, as they were counselled to do; but any return is yet to come.

One lesson we can learn from the eminent European gentlemen and their works:—the valuable lesson what not to do—not to build inadequate works; not to make slow canals; not to waste the time of vessels; not to place an unnecessary obstacle in the way of commerce.

We cannot, of course, annihilate the difference in the distances of Buffalo and Kingston respectively from Duluth and Chicago; but we can make

the Welland Canal big enough for the largest lake vessels, and save 14 hours in the time required to pass through it; and thus reduce the handicap against Kingston from \$1.36 to 40 cents or thereabouts, and give to the cities of Lake Ontario and the St. Lawrence similar facilities as, and an equal chance with, the cities of the upper lakes.

The people of Canada, and in larger measure the people of the United States, must have cheaper transportation;—cheaper freights than can be given by railroads, however perfect in plant and management; they must have relief from the burdensome terminal charges, which, already high, must from year to year increase on rail freights, as the cities grow and land becomes more valuable.

To satisfy the present and future conditions of commerce and production, they must turn to perfected water transportation and to the St. Lawrence outlet, where it can reach the highest development. The volume of the existing commerce fully warrants any outlay that may be reasonably anticipated.

The past ten years have seen great changes. A decade ago prices were high, profits large, and high freights could be borne, and were borne, without murmuring. But we have seen steadily falling prices, until to-day May wheat is only  $7\frac{1}{2}$  cents a bushel in New York; and in the same port "ungraded" flour is selling for \$1.75 a barrel, "superfine" for \$2.10, and "patents" for \$3.60.

How is the farmer to exist, unless cheaper transportation and cheaper commodities compensate for the fall in price of his staple products? With an average cost of production of \$8.25 per acre, and a yield of fifteen bushels, the farmer's wheat costs him 55 cents a bushel to produce, and at its present price,  $7\frac{1}{2}$  cents in New York, the margin to pay freights and commissions and furnish profits is  $19\frac{1}{2}$  cents a bushel. These figures, how-

ever, while based on the average yield, do not truly picture the unfortunate condition of the farmer, for the average yield of fifteen bushels is made up of the few acres that will yield large crops, and the many that fall below the average; for instance, to strike the average of fifteen bushels would require five acres at twelve bushels to one at thirty bushels. It is fair to presume, therefore, that twelve bushels, rather than fifteen, represents the crop of the average farmer, and at \$8.25 per acre cost of tillage, the wheat cost  $68\frac{1}{2}$  cents to produce, and the margin out of which must come freight, commissions, and profits (if there be profits), is only  $5\frac{1}{2}$  cents a bushel. What an outlook is this for the farmer, who sees the day fast approaching when his worn land will require fertilizing!

Such conditions imperatively demand the cheapest possible transportation and the fewest rehandlings. An outlet must be provided by which the products can be carried, without breaking bulk, directly from the producer to the point of consumption.

Nature has made practical the making of such an outlet, eastward by way of the great lakes and the St. Lawrence, and from the St. Lawrence southward to the consuming population of this continent by way of Lake Champlain and the Hudson River. Nature has traced for us a great roadway, by which we may have cheap and ready access to all the great marts. This roadway must be made fit to serve the needs of the people, and enable them to get out their products and to get back their purchases with the least possible freight cost.

Science, art, and invention have placed in our hands the means, and have equipped us with the knowledge, necessary to properly and adequately build upon the foundations provided by Nature, to complete and perfect the great roadway into the heart of the continent, and to crown this century with an achievement unexcelled in boldness and grandeur of conception and in the benefits which it will confer upon the people in ameliorating the conditions under which they toil.

WASHINGTON, U.S.



## ASPECTS OF LAKE ONTARIO.

BY JOHN HAGUE, F.R.S.S.

To the vast majority of Torontonians, and their neighbors along Lake Ontario, the varied aspects of the lake are as little known as those of the Arctic Sea.

Those who have only seen the lake from the deck of a steamer have not seen it in any true sense, for, in this case, it is especially the fact that "Tis distance lends enchantment to the view." Yet within an hour's ride from the city, one of the loveliest sights in nature may be enjoyed by all who have that "inner eye," of which Goethe speaks, "the inward eye" of Wordsworth, the eye through which the beauty and sublimity of scenery touch, elevate and refine the soul. It is this "faculty divine" which differentiates man from the brute creation. Cows, horses and sheep graze in pastures where nought is seen but grass and sky, with as much delight as if "all heaven," or the grandest panorama of sea, mountain and forest were in view. In neglecting to cultivate the faculty of appreciating Nature, we are sinking to the level of the lower animals. As the use of any gift enlarges its powers, so its disuse leads to atrophy. Thus, the man who never enriches his higher faculties by communion with Nature, so blunts them that his inner eye, the eye of his soul, becomes *bovine* in perceptual dulness.

If ever city had a beautiful Sanatorium provided by Nature, it is Toronto. Picturesque ravines, running to the lake, abound, where are,—

"Spots and sunny openings, and with nooks  
To lie and rest in, sloping into brooks."

On the high lands from whence they dip lakewards, there is no damp or malaria, as, from the bosom of the waters below, there flows a stream of

vivifying aerial waves, of morning and evening breezes, that are tides laden with health.

Were this region of wooded, serrated lake-shore costly to reach, and had a fashionable hotel in its limits, many would flock thither for rest and health who now decline even to look upon "the goods the gods provide" within sight of their homes. But, as Emerson says, "few adult persons see Nature." The great lake at our doors is, however, something more than a water-tank, fish-pond, or convenience of navigation. Its beauty makes it "a joy forever," an inspiration, a solace, a mental anodyne, a stimulant also, and a perpetual, unwearied delight to the observant eye. "What shield men from impressions of natural scenery are low anxieties, vain discontents, mean pleasures, vulgar selfishness and impious care." Men allow "the fretful stir and fever of the world" to worry them into sickness of body and mind, instead of finding strength for both where—

"Tis pleasant thro' the loopholes of retreat,  
To peep at such a world, to see the stir  
Of the great Babel, and not feel the stir"

in scenes of natural beauty and peace,

"In which the burden of the mystery,  
In which the heavy and weary weight  
Of all this unintelligible world  
Is lightened."

In summer the lake is seldom as clear as in other seasons. A gossamer veil of mist is drawn over its face, except after a rain-fall, when it mirrors the sky, changing its aspects with every movement of the clouds reflected on its surface. When these are being driven before the upper air currents, as Shelley depicts them,—

"Fleecy clouds, wandering in thick flocks,  
Shepherded by the slow, unwilling wind,"

the waters beneath are kaleidescopic in their rapidity of changing combinations of color. The lake flashes with sudden lights, or frowns with shadows, as though angry at its beauty being marred by clouds, as they seem to pile Pelion on Ossa before a storm, when its face darkens with despair. It is, however, to the mists, and fogs, and clouds that the lake owes its most attractive aspects. Byron notes this in the lines,—

"Vapours more lovely than the unclouded sky,  
With golden pinnacles and snowy mountains."

So also Longfellow,—

"Forth from the curtain of clouds, from the tent  
of purple and scarlet,  
Issued the Sun, the Great High Priest, in his  
garments resplendent,  
Blessing the world he came, and the bars of  
vapour beneath him  
Gleamed like a grate of brass, and the sea at his  
feet was a laver."

A too little known writer, *facile princeps* of art critics in his day, the late Henry Merrit, writes:—"A dense fog, mingling with the warm sunbeams, yielded an intense radiance, blending in broad luminous bars tints of amber, saffron and gold," all which color-effects, may be seen mirrored in the lake, and heightened in beauty when

"Winds come whispering lightly from the  
West,  
Kissing, not ruffling the blue deep's serene."

In autumn the lake is most clear, the trees on the American shore are visible, the smoke-like mist of the Niagara cataract can be seen, and steamers can be followed by the eye up to the gorge of the river.

But the air in the fall is too clear for "artistic" effects, as those infinite varieties and delicacies of color in light and shade, which charm an artist's eye, are not produced when the lake is suffused with light. Reflections are fewer and outlines are hard and harsh. It is this prevalence of *glare* which detracts so much from the value of Canadian scenery for the purposes of Art. As Lessing

says in the *Laocoön*, something more is needed than merely copying an object to make a painting. Distance gradations, so charming when skilfully depicted, are very difficult to represent when every object is brought near the eye by the translucency of the atmosphere. Most paintings of the Rocky Mountains are unsatisfactory from this cause. Those magnificent peaks seem so near that their grandeur is lost. They look like models on canvas, very beautiful in form and tints, but without any touch of the sublime. Sir Thomas Browne, in *Religio Medici*, unconsciously hit the mark when he said, "If things were seen truly as they are, the beauty of bodies would be much abridged." So with the lake in October; it sparkles with a glittering brilliance, like a jewel in glow and in hardness. The most romantically fascinating lake-scene is, however, witnessed, when a fall moon is pouring its dazzling rays over the ripples, which shine like burnished silver, as though seeking to outshine the source of their splendor.

All through the winter there are many days when there seems to be no atmosphere over the lake, so sharply defined is the configuration of the southern shore. But to see how solemn, how stern it can appear, it must be watched on a storm-threatening winter's day. Then the flecks of yacht and skiff sails, the smoke of steamers, the more picturesque merchant vessels, that give a human aspect in summer, have all gone; the lake is abandoned of man, and gloom overshadows its face, as though saddened by this desertion. When the storm bursts out from the east, the lake, in the words of a Saxon poet who wrote ten centuries ago,—

"Roars with his waves in wrath,  
And the deep becomes a dread  
To the earth-dwellers."

The noise of its waters might then be mistaken for the tumult of Niagara,—but not of the sea. The anger of Ontario to the fury of the ocean, is as

the temper of a youth to the rage of a giant; there is noise indeed, but it is not the "terror of tempest" which inspires awe and dread, even when viewed from the land. But the lake has its passion fits all to itself, while in watching an ocean storm we cannot but reflect on and feel for those who are its victims.

In winter, the lake waters and those of the firmament often appear to be one united mass of vapor. Twice last winter there rose along the shore a dense mist, which seemed like a curtain or wall, rising abruptly from the water's edge, and towering until blended in the "palpable obscure" upper region of cloud; as Milton says, "a fabric rose like an exhalation," with an outline as defined as a precipice. This is a rare phenomenon, as usually lake mist spreads over the lower shore lands, but very rarely rises to the top of the cliffs.

In winter the floating array of marginal ice gives at times the appearance of a narrow bay or canal, running for miles between the lake and mainland. Charming color effects are seen in winter, caused by flushes of reds, pinks, opal, and all the rainbow tints being reflected on the restless water. Another singular color aspect is when the lake seems a vast milk bowl; its surface is a dull, dead white. This is caused, as are other water tints, by

the lake giving paleness to those of the reflected sky.

Lake Ontario is not comparable in sternness of aspect to Glendaloch, nor in beauty to Windermere, nor in grandeur of surroundings to Loch Lomond. But, as Touchstone said of Audrey, we each may claim Lake Ontario to be "mine own." It would, however, need the pen of a Ruskin or Shelley to do the aspects of the lake descriptive justice. Having the gifts of neither, I have set down in plain prose how this glorious sheet of water appears to one who knows more of the figures of arithmetic than those of rhetoric.

Business men, writing under the strain and stress of city strife; their wives worn and weary with house worry; their children sickening from malaria and lack of exercise, would find their nerves being tuned to healthful music, their cheeks flushing with freshened tints of purified blood, by leaving an atmosphere tainted with sewer gas to inhale the tonic perfume of the pine bush, and to breathe such pure air as the Creator of our lungs designed them to breathe, and their whole constitution of mind, body and spirit brightened and recuperated by the fresh breezes which blow over and give varied aspects of beauty to Lake Ontario.



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## THE WOMEN OF THE UNITED STATES.

BY CECIL LOGSDAIL.

THE portraits which illustrate this article are of typical American women who have achieved renown in the highest social circles of various towns of the United States for their beauty and their intellectual capabilities as well as for the amiable and attractive manners which make them the life and light of the drawing-rooms.

Whoever has watched the delicate forms of American women, noted how daintily they are always attired, and learnt how free and affable are their manners to strangers, will certainly go away with the impression that they are indeed charming, and, if one misses those blushes of purity which only a mother's look can inspire in girls out for their first season, it is only because their education is different, and because they become women earlier than the majority of English girls do. That they are fast getting the upper hand in that country is certain, and whether it is not better for themselves as well as for the male portion of the community that they should do so, is a matter of opinion. In many respects, as an unprejudiced being, the writer firmly believes that the men have less grounds for fear from the new power placed in the women's hands than the latter in times past have had from the former.

The treatment of women since the birth of the first daughter of Eve is, to our way of thinking, the foulest blot on the history of the world. The arraignment is not confined to one nation, but includes all races and peoples of the earth from the date of their historic existence. Over the female half of the human family—to call it the "better half" is really a fine satire, considering their treatment hitherto — there has steadily brooded a cloud of gloom and repression, of disability and servitude, of persecution and depravity. Among the Hindoos, woman was the slave of man, and was considered so immensely his inferior that she was forbidden to speak his language, and was condemned to use the *patois* of slaves. Under the old Roman law, the husband was the sole tribunal of the wife. He controlled her property, earnings and religion; she was allowed no rights in her own children; her husband held over her the power of life and death, and she could invoke no law against him. The Hebrews pronounced her an afterthought of the Deity, and the mother of all evil, while the Greek law regarded her as a child and held her in everlasting tutelage. Aristotle called her a "monster" and an "accidental production." The early Christian fathers denounced women as "noxious animals," "painted temptresses" and "necessary evils," "desirable calamities" and "domestic perils." From the English Heptarchy to the Reformation, the law proclaimed the wife to be "in all cases and under all circumstances, her husband's creature, servant and slave." To Diderot, she was only a "courtesan;" to Montesquieu, "an attractive child;" to Rousseau, "an object of pleasure to man;" to Michelet, "a natural invalid." But humanity has now moved forward to an era where wrong and slavery are being displaced, and reason and justice are being recognized as the rule of life. America has, in the columns of her public press and periodicals, laid claim to having taken the first real step in improving the lot and condition of women. Let us see, if possible, how far they are warranted, if any, in this assumption.

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In the first place, whatever has been done in this direction, it is claimed by the women, has been done by themselves, chiefly through the Woman's Suffrage agitation. It is absurd, however, to suppose that the United States was the first to admit the eligible for the school boards, guardians of the poor, etc., for the past twenty years. Ontario recognized the claims of women to the higher education obtained in the universities, besides throwing open to them many industrial occupations previously closed



MRS. CLEVELAND.

claims of women to public offices, or even to open up the doors of the universities to them. The emancipation of women is most complete in Scotland to-day, and, certainly, women have had in England a property vote in all municipal affairs, besides being

to them, long before many of the states of America. But very few reforms in the condition and power of women were made in the United States until they began to demand the ballot. Some of the laws that still defile the statute books of the various

states in that country remain to be repealed. Without for one moment defending the action of the Women's Suffrage Association *in toto*, I can, as an Englishman who has resided for a number of years in the United States, honestly admit that this body has accomplished much in relieving the women of that country of many of their burdens. Yet, at the present time, only six of the states of the Union allow the married mother to be an equal legal owner and guardian of her minor children with her husband. In all other states the father has the legal control and ownership. If the wife have the leisure and ability to earn money (and she has far more opportunities offered her in the United States than in England), in fully half the states in the Union the law gives the husband her earnings also. Is it strange that there is unhappiness in married life, and frequently divorce? Does it not seem that American women need the ballot for their own protection? The peculiar education, privileges and opportunities given to women in that country already, make the question of the franchise a far more important element in American politics than in English. It may be that in the United States they have advanced so far as to forget the proper function of women or not gone far enough; either taken a step in the wrong direction or halted half way, so as to make their legislation worse than valueless by giving a loophole for the spread of worse evils than those which previously existed.

To compare American women with English women is not an easy task. One trait, however, should not be forgotten. The girls of the United States, as in Canada, are taught quite young to be more self-reliant and independent. It is not considered a disgrace to the family record for a girl to turn out from school and earn her own livelihood, no matter how wealthy her parents may be, and hence nearly half

the employees in offices as clerks (to say nothing of factories) are females. The proportion of males to females in many states of the Union may render this in some manner a necessity. But this has its disadvantages, for, while we may justly admire this spirit of self-reliance common to all American girls, and acknowledge their right to become bread-winners, it tends to make them, perhaps, a little worldly-minded and less affectionate and domestic. It is not at all singular that a nation avowedly of progress, and untrammeled by tradition should thresh the subject out in all its bearings, and so far, perhaps, the experiment has not been a failure. Many of the colleges, professional schools and universities, closed against women for ages, have there and in Canada been opened up to them. Trades, businesses, and remunerative industries and the liberal professions seek women, and their capacity for public affairs has received the first genuine recognition in America. In all of these capacities, with the exceptions before enumerated, they have displayed ability and evinced their usefulness, and the laws are now framed, not only to give them a separate independence from the males, but to punish with the utmost severity every insult offered them, and all encroachments on their rights. But a great proportion of girls employed as clerks, stenographers and type-writers, in the large cities as well as in Canada, work for less than laborers' wages, cutting down the prices so low that male clerks and bookkeepers, accustomed years ago to get large salaries, are now altogether out of the race, or have to be content with wages altogether insufficient to clothe themselves and their families. No doubt a large number of these female clerks undertake such work for no other reason than to avoid domestic duties, which they deem to be irksome, or to have an excuse for indulgence in pleasure which would otherwise be deemed imprudent. It should

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not be forgotten that increase in prosperity and refinement has everywhere produced a corresponding increase in crime, vagabondage and lunacy in all countries on the face of the globe, and especially is this so among women. It is lamentably true that the moral de-

again, has many drawbacks. It is to be feared the system of training boys and girls together in the public schools of the United States and Canada is not a wise policy, or one easily understood by Englishmen, who give to the sexes their separate functions



A BROOKLYN YOUNG LADY.

generacy among the female portion of the human race is greater in all countries where the women have largely given up leading domestic and retired lives to enter into the various industrial occupations thrown open to them.

Much might be said respecting the education of American women, which,

in life. It has also a tendency to create in young minds a hankering after that knowledge of evil which comes to most people, male and female, soon enough, and makes the sale of indecent literature particularly profitable in spite of the penalties sometimes incurred. Possibly this may be the

origin of that peculiar love of public scandal which is so amply gratified by the public press in that country, and is so great a factor in political advancement among its public men.

Judging from the foregoing, it will readily be seen that United States women view the question of marriage from a different standpoint than English women. There is, perhaps, more prudence exercised in this respect by the marriageable girls themselves, who approach the subject with less misgiving and are accustomed to think and act for themselves. The worldly prospects of the prospective husband are more openly discussed before a decision is arrived at, and an American woman is taught to expect more from marriage ties than a blind obedience to her husband's will and pleasure. In fact, the contrary is usually the case. She is accustomed to receive everything she asks for, and the husband's chief care seems to be to make all the money he possibly can to lavish it on his wife and family as she thinks fit to spend it. Society makes divorce justifiable in all cases where a woman can shew she has not been treated with proper respect or reasonably cared for. Hence it is not strange that 65·8 per cent. of the total number of divorces granted in the United States during the past twenty years were granted to petitions of wives. This would seem, in so far as America is concerned, loudly to sound the note of doom to the old-time ownership of the wife by the husband, or, in other words, to the submission in which wedlock has placed women. Divorce is a menace to the purity and sacredness of the family, but a prominent American public man says that it may also be made so to "the infernal brutality of whatever name, and be it crude or refined, which at times makes a hell of the holiest relations." No doubt the divorce movement finds in America its impetus, outside of laws, institutions or theology, very largely through the

rebellion of the human heart against the slavery before alluded to, for Americans are not deterred by the sentiments of tradition. No sentiment will suffer an American woman, reared in self-dependence, to drag along chains not of her own forging, or to live with a brute of dissipated and immoral habits, unless she is equally vicious. It seems not only to be a philosophical fact, but a fact strangely overlooked by our philosophers, that the future of the race depends on women—on their physical power to give birth to strong and healthy, as well as intellectual children. On these grounds alone, apart from all sentiment, the subject is worthy of the fullest consideration, and women are entitled to the greatest possible care and attention. The girls of to-day will be the mothers of the next generation. Hence on the purity of the marriage tie depends the future of all countries. Philosophically and scientifically, it is an indisputable fact that the spread of immorality is the prelude to the downfall of peoples, who are weakened in the moral and physical power of their children by a false and vicious view of the natural rights and purposes of the sexes.

Particularly unhappy seem the marriages of American girls to foreign noblemen, especially German. Anxious for a title, for which they are ready to give their dowry, and, perhaps, a little carried away by romantic notions, they leave their mother country to become the wives of foreigners whose customs and traditions are wholly different, and often return home disappointed and heart-broken because they have not the smallest sympathy of their friends, who are quite unequal to comprehend the cause of their unhappiness. Perhaps many of them are not entitled to much sympathy either, for these marriages are often loveless ones, or *marriages de convenance*, by which the women buy the titles they pretend to despise.

On this question of marriage, it might not be inappropriate to show

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how a nation might go too far in its efforts to ameliorate the condition of her women. Some time back the State of Georgia reported favorably a bill to tax bachelors of thirty years and upwards twenty-five dollars a

for, where so much has been done to elevate the lot of women, it would be a great blot on a country's record that it left no room for natural affection and established much of its future through force.



MISS CARROLL, OF BALTIMORE.

year, and on a rising scale of twenty-five dollars for every five years above this age. This is surely preaching the doctrine that an increase in starvation, immorality and disease is desirable, and it was well that the enlightened legislature was laughed out of its folly,

While we have admired the respect and homage paid to American women, their self-reliance and freedom from restraint, it is to be feared that society has made them not a little too selfish and exacting. The very deference paid to them, coupled with the laxity

of the marriage laws, often makes them unequal to bearing the burden of sorrow, and, perhaps, America is not very prolific in heroines. If the prosperity of the husband is not sufficient to admit of his gratifying every whim of his wife, she at once fancies she is behind her neighbors and has made a mistake. Brought up, as she is in many instances, to consider her life a butterfly one, she soon becomes dissatisfied and peevish, and, perhaps, at the time when her sympathy and affection are most needed, she will seek to change her state, arguing that such a condition was not "in the bond." So long as she is petted and fondled and able to appear well dressed and to entertain friends with ostentation, she makes a very contented wife, but the misfortunes and rebuffs of life she is not often disposed to share. As for the society girls, they are much the same everywhere. The Americans are, perhaps, a little less restrained and a little fonder of display than in most countries. Fancy turning out in low-necked dresses to receive callers, or at an afternoon tea, covered with a wealth of jewels that would ruin most European husbands! If, in the main, they dress better than the majority of English women, and are less gawky or dowdish, they lack that simplicity which is true art, and which is a characteristic of many of the most charming Canadian and English ladies. Again, if American women are not always beautiful they are all intelligent. One does not see so many of those buxom, rosy-cheeked, healthy, rustic faces that have always been a favourite topic for description in English fiction, but one very rarely meets with a stupid, idiotic, or brow-beaten expression; and if they are of a less retiring disposition, they are also for the most part more capable of taking care of themselves, and are fully alive to the importance of striking a good bargain, whether in business or matrimony.

The theory that woman entrusted

with the franchise would be apt to become neglectful of household duties and create further dissensions in home life has, we think, been sufficiently disproven by the changes according them a wider scope for action, which has been given them of recent years. But American politics are so different from English, and ideas respecting the proper functions of women and their treatment so widely divergent that what under present circumstances would seem necessity in the United States might be a curse in England. Retrogression is now altogether impossible. The American woman knows the power she has already wrung from the male portion of the community, and she is not disposed to halt half way, even though the experiment has not proved an unqualified success in every particular. Perhaps this is merely the beginning of the end, and hence too early to judge of the results. Perhaps if in England it were better understood that Nature has gifted woman with other capacities than those of suffering, and if her mission were more generously understood outside of so-called society in its narrow sense, there would be considerably less unhappiness in married life, and a finer, nobler race of people would spring up. Not that the Mother Country should imitate the United States in the facilities given for divorce, but in the ideal culture the latter country aims at giving her women, and the homage which is paid to them in all classes of society.

As Art is refining and beautifying life, and Science extending immeasurably the bounds of knowledge and power, while Literature bears in her hands whole ages of comfort and sympathy, so is the age looking steadily to the redress of wrong and the righting of every form of error and injustice. If civilization has been retarded by the brutish treatment women have received at the hands of the physically more powerful and advanced; it would seem that the millenium may

be brought about largely by woman's agency, in triumphant return for the first curse, of which the first woman was the alleged cause. At any rate, the United States has done much in the right direction, and her achievements in this respect are a more creditable record than all the battles she

business of the nation, but an acknowledgment of their "moral superiority, mental equality, and physical inferiority alone," in our conduct towards them in public, as well as private, might go a long way towards making the future of England more prosperous and happy.



MISS BLANCHE WALSH, OF NEW YORK.

has fought and won. We may all admire the naive simplicity of the English maiden, and the charming modesty and retiring disposition of the British matron, who would both be robbed of their most winning characteristics by admitting them wholesale into the

It may be, as we stated at the outset, that America has gone a little too far, and destroyed, in some measure, the desire in her women to become patient and faithful mothers, thoroughly domesticated and careful housewives, by opening up the way for

them to earn their own livelihood, independent of the men. On this account, she may have rendered it doubly difficult for the men of the nation to exist at all, and spoiled in some measure their chances of being supported when they reach the marriageable age. But you will not, in these times, see an American woman stand to be "trodden on," or submit to ill-usage, for any sentimental reason or because she has not been taught to get along in the world through her own exertions. Frank and self-reliant, as she is, our first verdict might accuse her of forwardness and lack of modesty, but a more intimate acquaintance shows us that she is no more lacking in virtue and uprightness than the blushing English maiden. Practical and business-like she is, and one might exclaim, "This is truly a nation of shop-keepers,"

Perhaps the taunt would not be lev-

elled without reason, when we see women and men alike so closely concerned in all business relations. And just in proportion as a woman is able to accumulate wealth in business or better her condition by marriage, is she said to have "a level head on her shoulders," or she is pitied, on the other hand, for her "cranky notions." After all the meek submission which is not slavery, the soft reliance on the stronger arm of the gallant protector too noble to abuse his power, the gentleness that is not allied to any idea of affectation, and the purity which never seems as if it could admit of a wrong thought,—these are, and ever must be, the highest and most adorable qualities in woman. May the day never come when to have one strong affection and hope through life shall cease to be the only sound philosophy for man or woman!

### AT SCARBORO' BEACH.

THE wave is over the foaming reef  
Leaping alive in the sun,  
Seaward the opal sails are blown,  
Vanishing one by one.

'Tis leagues around the blue sea curve  
To the sunny coast of Spain,  
And the ships that sail so deftly out  
May never come home again.

A mist is wreathed round Richmond point,  
There's a shadow on the land,  
But the sea is in the splendid sun,  
Plunging so careless and grand.

The sandpipers trip on the glassy beach,  
Ready to mount and fly ;  
Whenever a ripple reaches their feet,  
They rise with a timorous cry.

Take care, they pipe, take care, take care,  
For this is the treacherous main,  
And though you may sail so deftly out,  
You may never come home again.

—DUNCAN CAMPBELL SCOTT.

## GLIMMERINGS OF "SARTOR RESARTUS."

BY C. M. SINCLAIR.

SOME years ago, looking through the library of a friend—a cultured man—I came across a copy of Sartor Resartus, and on the front fly-leaf I read this inscription : “This book is filled with the purest of gold in the form of Truth.” It set me wondering what manner of book this was to call forth this eulogy from my host, silent and reserved as he was and not at all given over to empty compliments. As I read on in the book, it seemed to me that I was like a traveller partially lost in a forest of thick underbrush, with here and there a towering elm blazed to show the way out. Gradually, though, as I looked closer, I saw that, instead of a maze, several well-defined bridle-paths led through the vigorous growth, and, keeping this well in mind, no further difficulty was experienced. It is not my purpose to review this great work of that great Scotchman, Thomas Carlyle, for that has been well and illy done long since, but I would wish in this unreflective age to recall some of this seer’s calm and noble thoughts, if only as a contrast to some present-day literature that masquerades on the world’s stage as Reflection.

It is not alone Carlyle’s peculiar style, which some one has called “literature read by lightning flashes,” that gives his works their undying interest, but it is mostly because he stripped everything he put his hand to of falsehood, and the real lineaments stood out in bold relief, often hideous and ugly, but always truthful, as he saw Truth. It cannot be gainsaid that sometimes this anatomical flaying went too far, and the unhappy victim was painted in darker colors than a more liberal-minded person would desire. On the other hand, where can

be found a more charming glimpse of childhood than this of Teufelsdröckh : “On fine evenings I was wont to carry forth my supper (bread crumbs boiled in milk) and eat it out of doors. On the coping of the orchard wall, which I could reach by climbing, or still more easily if Father Andreas would set up the pruning-ladder, my porringer was placed : there, many a sunset, have I, looking at the distant western mountains, consumed, not without relish, my evening meal. Those hues of gold and azure, that hush of World’s expectation as Day died, were still a Hebrew speech for me ; nevertheless I was looking at the fair illuminated letters, and had an eye for their gilding.” Poetry was the natural speech of Carlyle ; we see it everywhere in his rugged, home-made phrases, written in the form of prose, but nevertheless it is poetry, unaffected, free-flowing poetry, if there can be any other sort—and in our hearts we feel that we are reading not prose, but the poetry of Truth. Some cathedrals have floors of mosaic so perfect that each stone may be examined by itself for beauty, and yet the entire number make one harmonious whole. So it is with Sartor Resartus ; we can take a reverie by itself, and the picture is perfectly limned. Let us imagine ourselves seated in a high observatory, at the midnight hour, looking out with keen eyes and calm philosophy on a sleeping city of half a million scattered around about us.

“*Ach mein Lieber !*” said he once at midnight, when he had returned from the coffee-house in rather earnest talk, “it is a true sublimity to dwell here. These fringes of lamp-light, struggling up through smoke and thousand-fold exhalation, some fathoms into the an-

cient reign of Night, what thinks Boötes of them, as he leads his Hunting Dogs over the Zenith into their leash of sidereal fire? That stifled hum of Midnight, when Traffic has lain down to rest, and the chariot-wheels of Vanity, still rolling here and there through distant streets, are bearing her to Halls roofed in and lighted to the due pitch for her, and only Vice and Misery, to prowl or to moan like night-birds, are abroad; that hum, I say, like the stertorous, unquiet slumber of sick life, is heard in Heaven! Oh, under that hideous coverlet of vapours and putrefactions and unimaginable gases, what a fermenting-vat lies simmering and hid! The joyful and the sorrowful are there; men are dying there, men are being born, men are praying—on the other side of a brick partition men are cursing; and around them all is the vast, void Night. The proud Grandee still lingers in perfumed saloons, or reposes within damask curtains; Wretchedness cowers into truckle-beds, or shivers hunger-stricken into its lair of straw; in obscure cellars, *Rouge et Noir* languidly emits its voice of destiny to haggard, hungry Villains; while Councillors of State sit plotting, and playing their high chess-game, whereof the pawns are Men. The Lover whispers his mistress that the coach is ready, and she, full of hope and fear, glides down, to fly with him over the borders; the thief, still more silently, sets to his picklocks and crowbar, or lurks in wait till the watchmen first snore in their boxes. Gay mansions, with supper-rooms and dancing-rooms, are full of light and music and high-swellings hearts; but in the condemned cells, the pulse of life beats tremulous and faint, and blood-shot eyes look out through the darkness, which is around and within, for the light of a stern, last morning. Six men are to be hanged on the morrow: comes no hammering from the *Rabenstein*? their gallows must even now be o'building. Upwards of five hun-

dred thousand two-legged animals, without feathers, lie around us in horizontal position; their heads all in nightcaps, and full of the foolsiest dreams. Riot cries aloud, and staggers and swaggers in his rank dens of shame; and the mother, with streaming hair, kneels over her pallid, dying infant, whose cracked lips only her tears now moisten,—all these heaped and huddled together, with nothing but a little carpentry and masonry between them; crammed in like salted fish in their barrel—or weltering, shall I say, like an Egyptian pitcher of tamed Vipers, each struggling to get its head above the other; such work goes on under that smoke counterpane! But I, *mein Werther*, sit above it all; I am alone with the stars."

Is not that a perfect example of rugged, eloquent word-sketching? It may be likened to the composite photographs which are produced by bringing out the striking characteristics in a number of views, and compressing them in one picture. It is a picture of contrasts, of striking contrasts, with some of the lines so sharply drawn that we would say, in any other but a Carlyle portrait, they were out of place. He sets all our hitherto established canons of writing at defiance—tramples on them in fact, and with almost a shriek presses them down into the mud as temporary foot-holds, whilst he shouts out to the world his strangely-worded gospel of Truth. But the attempt is useless to try and analyze Carlyle's style. It is Carlylean, and that is all that can be said about it, and such another dialect-jargon was never heard before. He who is tired almost unto death with the mildly inoffensive summer novel bearing "The Duchess" brand, or the nastiness of the erotic Zola school of imitators, should turn back and read "Sartor Resartus." It does not belong to the "modern" group, and it would not be a popular subject for discussion in a fashionable drawing-room, but it is good and healthy, and

in reading it we feel our footing secure, for we are certain of having at last got down to bed-rock facts. It is refreshing sometimes to find ourselves in a new, strange country, with nearly all our bearings at fault, to be whirled tumultuously along by the edges of steep precipices, or to descend into the fertile valleys with an eccentric guide, who only deigns to converse at intervals, and then in quaint puzzles, but whose pathos is never bathos, and whose sentiment never descends to sediment. Unconsciously we know that here is a freak in literature—a sort of mastodon, Taine calls him—and we are left in a state of doubt whether, indeed, he is not laughing in his sleeve at us, and mayhap at himself, for there is a strong undercurrent of grim, ironical humor. For example, how would this suggestion from Sartor Resartus work if carried into practical effect at the present time, when our young men are "smarter" than were those of any past period in the world's history. "I have heard affirmed (surely in jest) by not unphilanthropic persons, that if there were a real increase of human happiness could all young men from the age of nineteen be covered under barrels, or rendered otherwise invisible, and there left to follow their lawful studies and callings, till they emerged, sadder and wiser, at the age of twenty-five. With which suggestion, at least as considered in the light of a practical scheme, I need scarcely say that I nowise coincide. Nevertheless it is plausibly urged that, as young ladies are to mankind precisely the most delightful in those years, so young gentlemen do then attain their maximum of detestability. Such gawks are they, and foolish peacocks, and yet with such a vulturous hunger for self-indulgence; so obstinate, obstreperous, vain-glorious; in all cases, so foward and so forward. No mortal's endeavor or attainment will, in the smallest, content the yet as unendeavoring, unattaining young gentleman; but he could make it all infinite-

ly better, were it worthy of him. Life everywhere is the most manageable matter, simple as a question in the Rule of Three; multiply your second and third terms together, divide the product by the first, and your quotient will be the answer—which you are but an ass if you cannot come at. The booby has not yet found out, by any trial, that do what we will, there is ever a cursed fraction, oftenest a decimal repeater, and no net integer quotient so much as to be thought of." The bitter, ironical, but truthful philosophy of this extract is characteristically Carlylean. His was too intense—too eagerly burning a nature to take in a whole truth. He saw in an intense white light one side—sometimes several sides—of a truth, but he never waited like Macaulay and surveyed it from all sides. He never waited to marshal up the contrary arguments, but simply took a flying leap for the next upheaved boulder of Truth, and so he crossed the ocean of Reflection. "What matters it," you will ask, "if the young man is foolish, foward, and jauntily confident that he can easily solve Life's riddles which have appalled his elders." God grant the day is distant when the young man, shading his eyes, looks out into the future with the doubts and fears of the old man. Barren, indeed, of noble deeds—the outcome of noble aspirations—would the world be, could the young man see the disappointments—the heart-breaking rebuffs—awaiting him on life's journey.

"God holds the key of all unknown,  
And I am glad;  
If other hands should hold the key,  
Or, if he trusted it to me,  
I might be sad.  
What if to-morrow's cares were here  
Without its rest?  
Better that he unlock the doors,  
And as the doors swing open  
Say, 'Thy will is best.'"

As we close Sartor Resartus, we feel that we have been examining the closely-written brief of a special

pleader—an honest, healthy, truthful, special pleader, but nevertheless a special pleader—who, not from design, but from impatience, has skipped many lovable features in a landscape not altogether gloomy; and though convinced, as all must be convinced, that we have been permitted to see the canvas of a master-artist (the peer of whom another century will probably not breed), yet it seems almost that a softer line here and there would improve the picture—it would make it more pleasant in any case. But this feeling of pleasantness was exactly what the author of *Sartor Resartus* was railing at; it was not a pleasant picture he strove to paint, but a truthful one, and the bare strokes of his

genius are truthful, but the picture is not filled out. Comparing, or rather contrasting, Macaulay and Carlyle, the French critic Taine has said: "There is probably less genius in Macaulay than in Carlyle; but when we have fed for some time on this exaggerated and demoniacal style, this marvellous and sickly philosophy, this contorted and prophetic history, these sinister and furious politics, we gladly return to the continuous eloquence, to the vigorous reasoning, to the moderate prognostications, to the demonstrated theories, of the generous and solid mind (Macaulay), which Europe has just lost, who brought honor to England, and whose place none can fill."

### HEARTS-EASE.

Oh, Hearts-ease, purple as the midnight skies  
 Half veiled by drifting mists of fleecy white,  
 And golden as the waves of sunset light !  
 That he may not forget my absent eyes,  
 I pray thee, lest remembrance wholly dies,  
 Tell him of me, when in the silent night  
 Or busy day he sees thy faces bright,  
 Bathed with the dew that on their petals lies.  
 Hearts-ease, I kiss thy radiant lips for him ;  
 Kiss from his own the lines of patient pain  
 When he shall stoop to drink their fragrant breath.  
 Cheer thou his heart through life's long shadows dim,  
 Until I meet him face to face again  
 Beyond the gates of re-uniting Death.

—GERTRUDE BARTLETT.

## WOMEN AND MONEY.

BY ELLA S. ATKINSON.

If the opinions of many people were put into words they would run something like this: "Women are to spend money, to get money, to beg, coax or hoax it, but they never understand its value."

The idea is not an uncommon one. It is held, for the most part, by men, but, like your last summer's sailor hat, it is a little old-fashioned for this season.

There are three ways in which women get money—through the dead fingers of their dead kin, the living ones of their existing relatives, or by their hands or wits. Latterly women make more money. It is now less of a stigma to earn a livelihood than it was twenty or even ten years ago. There are still, though—more's the pity—those who look askance at the young woman whose bonnet and bread are paid for out of her own wages.

A woman's ideal existence is in the home. Be she wife or daughter or mother whose hands rule the house-keeping, it should be her privilege, her jealously-guarded care, to wall that defence of hearts with her own loving strength. She should be the cheerful, tender helpmeet, the father's staff, the children's good angel, the housewife, the home-maker and keeper, and the blessed sunshine. That would be a woman's ideal existence—but then, the man's—Authorities differ, and we all hold our own opinions. I think he should read and write, plant rose trees and asparagus, be good to his wife and mind who his daughter marries. He should take his family for walks in the fields in the evenings and the not too early mornings, and he should go fishing once a week. When men live that kind of a life woman may return to her ideal existence. But this is not

Utopia. Roses and asparagus, and even brook trout won't do. Man's ideal existence has become a good deal warped and woman's has followed it away from the line of perfection. In the ideal world she wouldn't even want to know whether asparagus was another name for roses (if she could cook it); but in the now-a-day-world she does need to know them, Latin roots and all, and, more than all the rest of it, she needs to know the price of the roses and those tasty little shoots which look so big in the bunch and go off so distressingly in the boiling. Daughters, too, have been pushed away from that ideal existence. They, too, often find it does not pay, in even pocket money, to sit around and play sunshine for the family, just incidentally, while waiting to be married. All girls' hands haven't that little line that the palmist tells us means a husband. There are more than enough of them to go around, and so some girls must be the little Sally Waterses of society; only, now-a-days, the Sallies are "bachelor girls," and not old maids, and many of them earn their own living.

Now, is it better to depend upon an ageing father for support, or support one's self? Is it better to look to a brother, to take the home offered by an uncle, to be one of a cousin's family, or to be independent?

It may not be an ideal existence, but the world is not an ideal world, and there are a good many glass houses.

There must, of necessity, then, be women who earn money. There are two types of them—the one who dignifies the work, no matter what it be, who is not ashamed that it is her own hand that places her own dollar in her own purse; and that other one who is

bitterly ashamed at having to work for that vulgar necessity called money, which, she declares, every one should, of course, have in the bank. She doesn't call it money. It is denominated "remuneration," "recompense," "value for services," anything, except wages, plain salary or comprehensive "money." Dickens had seen this "lady." He fitted her up for Little Dorrit. She chaperoned old Dorrit's girls over the continent and called her salary "an amount paid at quarterly intervals to my credit at my banker's." If a woman honestly earns money she should not be ashamed to take it. It is hers, and she should be proud to write a receipt.

But whether a woman belongs to one class or another, she is yet a better spender than the one who has never gained money for herself in a fair fight with the world. A dollar earned means more than a hundred cents to spend. It means something added to the character—Something which yet remains when the money has gone for bread or bon-bons, shoes or violets. The earning of it is a great deal. I honor the woman who can earn her own livelihood. It may be that she peddles apples—well, if she didn't steal them first, and if she doesn't pass them out decayed side down, she is yet a step above the drones.

I am tired of the unending cry of hardened women. People talk of the soil of business life, the bloom that goes the way of the fruity mist on the plums and grapes. A good deal of it has foundation. The business woman learns that words are not words and that business affairs yield better returns if the transactions are in writing. It is not a woman's ideal existence, but then, what would you?

Has the cunning of the merchant, the shrewdness of the broker, the tact of the politician, the suavity of the preacher, any place in man's Utopia?

It must not be expected that a woman can live in the ideal ignorant innocence and keep house with it, while

a man comes home from this unideal world, which, however, is the best one we have. She would be a great deal too good for him. I do not think he could be allowed in.

Money-getting hardens and money-spending hardens; and yet I say the more able women are both to get and spend the better women they are—not ideal ones with wings, and aureolas around their curls, but good, sensible, true-hearted women, on sturdy feet of their own, and bearing in their bosoms loving, unselfish hearts.

The blue-blooded aunt of the family doesn't like the woman who earns money. If her niece is one of them, she doesn't like her niece. This aunt generally has a fortune and an everlasting heart disease, and the wage-earning girl knows too much about money to suit her. She knows that legacies don't amount to much until they are paid, and even then are not able to balance one crucifixion of a proper pride. The blue-blooded auntie will not be able to understand this, but then, she never earned any money and, ten to one, she doesn't keep accounts.

I like the woman who keeps accounts. She need not be niggardly as some suppose, and it will do her heart good, when she has spent her last dollar, to be able to exactly determine where it and all its fellows went to. She ought to be able to account for every cent—not to any one else, if it was her own money, but to herself. She can sit down and preach herself a nice little sermon on extravagance, and it will do her far more good than any amount of unsolicited advice and distasteful reproach.

Women should understand business and money transactions. Perhaps somebody's wife didn't learn about money when she went to school. Stocks and interest, general banking, and a little law weren't included in the curriculums of fashionable boarding-schools in the days gone by. Well, teach it to her now. You've no idea

what fun you old Darbys and Joans could have over "those nasty sums."

Some men will say indignantly : "But my wife's place is in the home."

Yes, we'll agree ; but he might be asked what he pays his life insurance for. It may be his wife will be left to attend to his affairs.

" But the lawyers," he adds.

Oh, yes, we've all heard of them.

There are wives who are their husbands' almost idols, yet they couldn't cash a cheque.

There are women to whom a bank book is Greek, and a discount some unintelligible disagreement between

man and man. Of course it would not be necessary for an ideal woman to understand these things, but an ideal man would not go and die and leave them for her to attend to. There are gray-haired women done out of their rights because they know nothing of business, and girls in their teens defrauded from their own because they were too innocent.

It has become not only expedient but necessary for women to thoroughly understand money. It will harden them, but only with an exterior protective hardness. Their hearts will still be womanly and beat true.

## WINGS.

A bird and a leaf swing side by side  
On the topmost twig of the bare elm tree ;  
The leaf is dead since the summer died  
And the winds are out in a dying world.  
The leaf and the bird sway drearily,

Till a wanton wind it bloweth them free—  
Snap ! and the leaf from its stem is whirled,  
Eddied and twisted and downward cast,  
To be trampled for aye in the dust of earth.  
Whirr ! and the bird with a thrill of new birth  
Straight upward is borne on the wings of the blast.

O, Soul, thou hast wings when wild winds blow,  
Tossing thee to and fro ;  
These dead, naked boughs are not thy home,  
The eternal heavens are thine to roam—  
Why tremble so ?

—BLANCHE BISHOP.

## "DÂK" TO PESHAWUR.

BY A. H. MORRISON.

THE city of Lahore is a city of gardens. Perhaps the mirage of memory may have magnified and transformed objects a little. Yet, I am bound to declare, that after a fifteen-hundred mile night-ride up country from Bombay, east to Allahabad, and then north-west to the Punjab, to descend among the groves and flowers of Lahore was to me like descending from the sterile heights of some torrid Nebo into a veritable Land of Promise. The stranger to India has not seen much by the way during his tedious night-journeys; for the intense heat, even in the month of April, renders stoppage during the day and rest under cover imperative.

What gardens they were! E'en as I write, they are shadowed forth as in a dream, and become again the partial embodiments of yore. What tangled luxuriance of foliage girdling the low, thatched bungalows! What a gorgeous array of creepers embracing and half-shrouding in their fantastic arms the pillared verandahs! What delicate, feathery frondage of palm and fern! And, above all, what splendid profusion of bloom, of every shape, size, shade and texture; ruby-stained hibiscus and white-surplice lily, pink-lipped oleander and purple-vestured passion-flower, roses more regal than Juno's imperial self, and jasmine as fragrant as the breath of Hyacinthus, while, permeating everything and rising superior to everything, like some sweet air in music, welling from out its environments of complicated variations, comes the luscious scent of the orange blossom, calling up visions of radiant forms in satin, fair faces smiling through tears, and generous bequests of bride-cake and wedding-favors, in that western home beyond the

sea, between which and this tropic Eden dances many a wave, bridged only by the memories and prayers of the loved!

From Lahore to the military station of Mean-Meer is but a few miles, and thither I was bound on my way to the North-West frontier, the Valley of Peshawur, that celebrated camping-ground and fortress, whose bristling bayonets and shotted guns keep watch and ward over the Khyber pass. Mean-Meer is nought but a sandy plain, sterile and forbidding, with huge barrack-bungalows studded over its monotonous expanse. Surrounding it, on all sides, are the private dwellings of the European residents, and the stores of the Parsees, who are the merchants and money-lenders, while beyond is the jungle and cultivated country. The plain itself is a Sahara, fever-stricken and cholera-haunted, a pest-house in a desert, cursed of God and man. I was not loath to leave it, shaking its dust in very deed off my feet, though I had been entertained right royally by my friend S.—, a former school-mate, attached to one of H. M.'s regiments of the line. I little thought that the near future was to see me there again, a denizen of that arid waste, at one of the most critical periods of my life. But so it turned out, and again a memory rises, and the open graves, one, two, three,—ten in a row, half-full of stagnant water, to be closed in ere half as many days, yawn up remorselessly to the heavens, while the tears of strong men and tender women fall like drops of molten lead upon the coffin lids, to the reiterated refrain, "I am the resurrection and the life," and the wail and ruffle of the dead march, in the lurid light of the dawn, or the sombre hush of the

gloaming, yet echoes in my unwilling ears.

In those days, there was no railway from Lahore to Peshawur, so the distance, over two hundred miles, had to be traversed by "dâk gâri," or simply "dâk," a means of conveyance that presents some peculiarities as contrasted with western vehicles, and therefore merits description.

Imagine an oblong box, six or seven feet by three or four, and correspondingly high, hoisted upon four wheels, with a sliding door in the middle at either side; harnessed to that box two Indian ponies, about as stout as ordinary clothes-horses; the Jehu, a cross between the missing-link and John the Baptist, as I have always imagined him, and the picture is complete. You enter by one of the side-doors, and, unless precipitated *instanter* and headlong to mother earth by the other, extend yourself full-length on a mattress which has been spread inside. It is easier to lie than to sit, although, by a slight re-arrangement of the interior, you may convert your temporary lounge into seats if you wish. By your side are your never-absent comrades, your sword and revolver; store of provisions is at your feet, with the inevitable label

which proclaims the bottled bass or "Eckshaw, No. 1," dear to the Anglo-Indian heart, suggestive of that tropic nectar, iced *brandy-pâni*, the *avant courier* of liver complaint and the invaliding board, though certainly a desideratum during the seasons of ague and cholera.

By "dâk," you travel by day as well as by night, for the sooner the journey is over the better, and there need be no stoppages unless the

traveller so desire, as fresh relays of horses are stationed at every eight miles stage, and Government foots the bill. All the inside passenger, the *gora sahib* (white gentleman), has to do, is to sprawl on his back and keep his temper, varying the amusement of staring at the ceiling of his caravan, by indulging in pet anathemas, "not loud but deep," as an unusually rough bit of road reminds him, that not all the ribs of man were extracted for the formation of lovely woman.



SCENE NEAR PESHAWUR.

It was five o'clock in the morning of Monday, April 10th, 1871, that I shook hands with my friend and committed myself to the depths of the caravan and the tender mercies of the missing-link. That worthy, nonchalant and sphinx-like, cracked his whip and away we sped at a rattling pace. The first stage passed without incident, we were within hearing, so to speak, of civilization and military authority; but with the commencement of the

second stage, some eight miles from the cantonment, the trials of dâk life began. It has ever been a source of wonder to me, looking back to that journey, that I survive to tell the tale of my Indian experiences. Truly, some men are hard to kill, and if a cat be possessed of nine lives, those who go down to the deep in dâks must have at least ninety and nine.

The clothes-horses of the last stage were removed, apparently none the worse for wear, and, bye-and-bye, after what I thought unreasonable delay, the missing-link, who had entered a tumble-down looking line of buildings, clay-walled and thatched, emerged, supporting tenderly two other lean kine, mere anatomies, evidently in the last stages of consumption. These dilapidated creatures looked so meek and ashamed of their condition, that I felt sorry for them, and would have expostulated with Jehu, but unfortunately I knew no word of Hindustani and he pretended he knew none of English, though I afterwards ascertained the rascal could talk the language well for a Hindoo. Recognising the futility of interference, and trusting that, at the worst, I should but have to alight and shove behind to convey the empty vehicle and the anatomies to the next station, I subsided into the recesses of the dâk and gave myself up to what fate had in store.

Not long had I to wait for the store.

All things were ready. The consumptives were in the traces and Jehu on the box. The whip was cracked and—that was all. There was no other movement. The whip cracked again and again. Jehu vociferated loudly with frantic gestures, looking more like the missing-link than ever; but still no movement to the dâk. Then the off-skeleton, feeling exhausted, doubtless, took it into his head to have a nap. Down he flopped in his traces, and no effort could budge him. The amount of Hindi profanity lavished upon that anatomy's defenceless head was something startling, for at the con-

clusion of it, the candidate for Ebal, who was of the usual sunburnt Eastern type, was positively pale.

After at least five minutes exhortation and remonstrance with whip and voice, as the situation was becoming monotonous, I determined to alight to see what my voice and arm might do towards setting things in motion. I had just got one leg thrust through the side aperture and one foot comfortably on the ground, when, as though inspired by an electric demon, that creature in the off trace sprang to its legs, and performed a series of evolutions that would have done credit to a clown mule in a circus. My spine was nearly dislocated as I was flung back on my seat. As for the leg that protruded through the doorway, it was some time before I could regain control over the physical being and motions of that eccentric member, which spun round like a demented catherine-wheel, until hauled in, as one hauls in a weighted trolling line, by inches. Meanwhile, the companion skeleton had been biting viciously at its performing mate, while endeavoring to drag it in an exactly opposite direction from the one it appeared inclined to take. At length, something like a spirit of unity seemed to animate the pair. They started at a break-neck pace along the road, and in less than three-quarters of an hour were at the termination of the stage, the transit having been performed partly in the air and partly on *terra firma*, but whether on wheels or upside down, I am not now able to state. After the performing Pegasus had alighted from its concluding flight, and while it was being unharnessed, I sat in silent wonder, not unmixed with admiration, puzzling my brains as to where that "small head" harbored "all it knew" of deviltry.

About noon we arrived at the first dâk-bungalow. The dâk-bungalow is a rest-house or sort of way-side inn, which affords accommodation for man and beast, and many creeping things

besides; the two first for a limited term at exorbitant prices, the latter free and for life, unless provided with means of transit by an unwary traveller. Some of these dák-bungalows are, however, very good, some indifferent, others decidedly bad. I may term this especial one good, though the charges were high and the roast goat tough. The bungalow, like all others, was in one flat, surrounded by wide verandahs with its own separate compound or enclosure. The servants were tolerably clean and civil, and the fare, with the single exception already named, passable. The pale ale was especially excellent, or, perhaps, I was very thirsty. It matters little now; the beer was swallowed and I am alive to bear testimony to the fact. In every dák-bungalow is a visitors' book, which is presented to the "sahib" before leaving. In that book the traveller enters his memoranda as to the fare and treatment he has received while a guest, and his opinion of the attendance and accommodation in general. The book is open for government inspection, and if many complaints are registered by the travelling public, so much the worse for the sable hosts.

After alighting from the dák, the first thing in order was a hearty draught of bitter ale; then followed a delicious cold bath. I had determined to remain under shelter till the fierce mid-day heat was over, so, instead of resorting to my own hamper of provisions, decided upon ordering dinner for one. A lusty summons of *Bawarchi* soon brought the cook, bandy-legged and unctious, who with many salaams assured me that dinner was not only a possi-

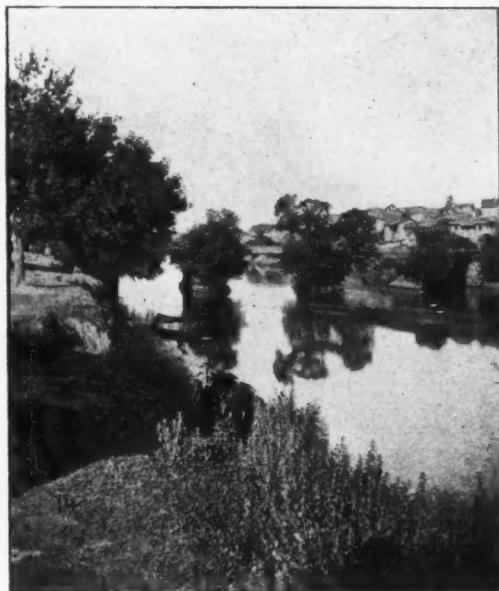
bility, but an event within range of the probable, if I chose to pay for it.

"Well, *bawarchi*, what have you in the eatable line?"

"*Aree, Sahib*, me got eberyting. Berry good."

"Well, what *have* you got?" I had, by this time, a tolerably fair notion of what a Hindoo's "eberyting" comprised.

"Me got rice. Me got vegable, pumpkin, tomato; *Sahib* like it, me make curry, berry good!"



A SCENE NEAR CASHMERE.

"Have you any chickens?"

"Shicken, *Sahib*! *Aree*, plenty shicken got it, *sahib*, in back compound."

"That's the ticket then: make me a chicken curry and a Bombay pudding, and let's have them at three o'clock, sharp."

"*Bahut ashchha, sahib* (very good, sir). Me catch shicken, an' make 'im curry, *jaldi, jaldi* (quick, quick)."

Being in want of a little diversion,

having enjoyed no sport since I left cantonments, I determined to see the consummation of the chicken tragedy, for I rightly judged the devoted fowl would be yet at liberty; so I rose and leisurely followed in the wake of the fowler. He proceeded down the centre passage which divided the bungalow into two halves, and presently emerged into the open space that lay between the rear verandah and a line of sheds beyond, comprising the kitchens, servants' quarters, etc., of the station. A row of pickets at each end of the enclosure joined the extremities of the bungalow to the out-offices and fenced in the space between, so that there was no outlet except through a wicket at either end, now closed.

"Sahib, wait here little while. Me go catch shicken."

The speaker seized a bamboo and disappeared through an aperture in the clay wall of the farthest division of the shed-like line. Presently, dire sounds of persecuted "shicken" issued from the bowels of the compartment. From the noise made, I concluded that there were at least a dozen or more birds in the hunt. Such cackling and clamor, such laboring the inner sides of the compartment with the bamboo, such exhortations for the recalcitrant fowl to come out like a man and be slaughtered, I had never heard before in my life. The noise became deafening. The stick resounded. The *bwurchi* yelled. The fowls screamed. I could imagine the feathers flying, and already, in anticipation, my mouth watered at thought of the pullet that was soon to smoke before me, smothered in a lagoon of luscious curry, and bounded by its snowy surf of glistening rice—a veritable East Indian *pillav*.

The clamor approached the door. The combatants were about to enter the arena, and I stood prepared to arrest the course of any refugee bird that might endeavor to escape by the back-doorway of the bungalow.

Shade of Esculapius! whose tutelary

bird was, I believe, a cock—What was it that appeared through the doorway, followed pell-mell by the sweating and excited fowler? No plump pullets, no spring chickens, not even a bevy of middle-aged hens; but one nondescript creature, a very anomaly of a bird, part Shanghai, part greyhound, and the remainder camelopard, that paced round the enclosure at the rate of a mile a minute. He had no feathers to speak of, was, indeed, in orthodox racing costume, and his athletic muscles stood out like knotted cords. My teeth fairly ached at sight of them. The way that thing ran was a sight for the Derby Day. It must have spent the greater part of its life in being chased. Moreover, it was up to every wrinkle of evasion. It knew every corner in which to double.

Off they went. The thing on long legs and in racing suit, first; the excited native, wildly flourishing his bamboo, a bad second. Whirr—rush—whack, whack, whack,—cluck, cluck, cluck,—whish—"Aree, *bachin-ki!*"—flap, flap, flap,—bang, bang. I could not refrain from catching the enthusiasm of the moment. I clapped my hands and shouted "Bravo! Well done all!" like the admirers of Gilpin, "as loud as I could bawl."

At length, with a despairing shriek, the much persecuted nondescript made a dive for the back-doorway. It was an unwary moment for me. I was off my guard, too much excited to be on the alert. The creature ran between my legs like a streak of ragged, mottled lightning, and escaped down the passage and so out by the front door. The hunt followed wildly, that is, the *bwurchi* and myself, the former cursing in the choicest vernacular, I laughing immoderately.

The last I saw of that bird for the occasion was from a jungle stump some quarter of a mile away. It was craning its giraffe-like neck, flapping its apologies for arms, and giving vent to its satisfaction over its escape in a lugubrious cock-a-doodle-do, that

sounded a compromise between the whooping-cough and the wheeze of a dilapidated penny-whistle. To this day I entertain a firm belief, that, on my return down country some twelve months later, I saw that self-same bird—I knew it by its disreputable habiliments—pruning the only pin feather left it. I am as confident it recognised me, for if it did not close its left eye and chuckle like a Christian, then am I myself a heathen Shanghai.

It is almost needless to add that the racer was the sole representative of the genus "shicken" at that road-side restaurant, so I had to substitute a piece of tough goat mutton for my contemplated curry. However, the other articles of the *menu* were good, and after I had chopped the goat flesh—I am not sure that it was *all* flesh: part seemed to partake of the consistency of hide or horn—into mincemeat, and pounded it with the curry-powder grinder for half an hour, it was reduced to a state fit for deglutition. I cannot, however, affirm that I have yet digested it. A spasmodic pain in the region of the liver often leaves me in periodic doubt as to whether some of the hide or skull may not be sticking there yet.

That night saw scene III. enacted in the drama, "Dâk to Peshawur."

I had been dozing and dreaming of all sorts of incongruous themes, presented in the most incongruous fashion, as is the wont of dreams accompanying short and broken slumber, when the stoppage of the dâk awakened me. We had evidently completed a stage, for I heard the driver, a new one bye-the-bye, who had relieved the missing link about noon that day, unharnessing and driving off the horses. Concluding that the usual change would be effected after the customary delay, I troubled no more about the matter, but turned on my other side to resume the incongruous. I soon fell asleep and now snoozed comfortably for an hour, but when I again awoke we were still at rest. I struck a match

and looked at my watch. One o'clock. It had registered midnight at my last appeal before I fell asleep. Everything was quiet, so I concluded that the horses had once more been removed at the end of another stage. A few minutes elapsed, when, hearing no sound, vague suspicions began to enter my mind of treachery on the part of the driver. I recalled all sorts of horrible tales of travellers in the jungle, who had been benighted and left to



A PESHAWUR BELLE.

the tender mercies of tigers or thugs by their faithless servitors. Reason, however, soon came to my aid. This, thought I, is a government concern. They dare not desert me, and, moreover, they are in a measure responsible for my life and safety. Thus solacing myself, with a revolver in my breast pocket and a good stout bamboo in my hand, I crawled from my resting-place, and, after a short struggle with the rickety side-posts of the doorway, reached *terra firma*.

It was a lovely night, not moonlight, but the heavens, of a dense deep blue, were sprinkled with a myriad glancing points of light, like a concave of blue-black velvet powdered with scintillating beads of gold. Great trees loomed heavily in the fore ground to my left, beneath which I could make out indistinctly the low line of clay-built stables and the out-offices of the station. The air was heavy with the fragrance of tropic leaf and bloom, not a damp, dewy fragrance, but a hot, dry and enervating sense, which was suggestive at once of summer and languor. The dâk, shaft down, lay in the middle of the broad and well-kept road that stretched away into the distance before and behind like a pale yellowish seam, between the bordering masses of gloam and indistinct light. Everything was suggestive of repose. Not a leaf stirred. Not a note of bird or insect disturbed the heavy languor which seemed to brood over everything like material wings; only every now and then the intermittent flash of a fire-fly could be seen, evolving from the dark like a life to be presently swallowed in dark again.

The thought at once struck me that we had not moved for an hour, that my driver had disappeared, and that I was alone in the middle of a wilderness at the dead hour of night. No sooner had the thought shaped itself in my mind than my course of action was determined on. I raised a lusty shout. A derisive echo was the sole response. Again I raised my voice. Again the echo sent back mocking intonation. From the neighboring lines a horse neighed. A mosquito hummed drearily by, making strategic feints towards my left ear. Impatiently I brushed the noisy little pest away, and, invoking anything but blessings upon the heads of everything East Indian, dâks, drivers, and mosquitos, I grasped my bamboo with a firmer clutch and strode in the direction of the vague line of buildings.

Here I raised shout on shout, but, obtaining no response, proceeded to dare the darkness of the interior of one of the compartments. The entrance was so low and narrow that I had to stoop and squeeze myself in on my hands and knees. My body was but half-way through the aperture, my arm and extended fingers being in advance, acting as pioneers, when they encountered a mass of something stretched inside the doorway and right athwart the threshold. It felt warm to the touch, and human. A little further exploration determined it to be indeed human and alive. I shook it by the first part that came to hand, the mid-ribs, and fairly yelled. How those niggers sleep, to be sure! At length, after a course of agitation that would have excited a physician's prescriptions to something like frenzy, and which any ordinary mortal would have deemed an earthquake, I succeeded in arousing the sleeper, and inducing him to make his egress by the doorway, when whom should I behold under the faint starlight, to which my eyes had now become accustomed, but that inevitable sinner, the driver himself. *Tableau!*

I draw the veil over what followed, for two reasons. First, I am a man of quick impulses, and I was armed with a bamboo, which species of vegetable growth has a remarkable affinity for the outer integument of fallible Oriental humanity. Second, I have long since forgiven my *vis-à-vis* of that eventful night, and would fain spare his feelings, should he ever learn to read English and behold this in print. Suffice it to say, that in about a minute I had half a village of gesticulating, screaming men, women and children and pariah dogs round me. The geese, of which there seemed to be an unlimited supply other than human, joined the outcry. The gabbling became deafening. But in the midst of the hubbub my late "sleeping beauty," who had dived into the stable, presently emerged with the stereotyped

anatomies, and to a full chorus of voices that would not have disgraced Wagner or *Walpingis Night*, the principal refrain of which was "*back-sheesh, Sahib*," I re-entered the dák in triumph and was borne on my way rejoicing.

The next morning we arrived at Rawal Pindee, a military station about ninety miles from Peshawur. Here, again finding friends, I broke my journey, dismissing the dák until the fol-

art thou now? Thy voice hath long been silent for me. Is it yet ringing, clearest of the clear, among the band of jolly fellows round the mess-table, or is it with that of another yet dearer schoolmate and friend, silent for ever, a spirit-voice, perchance, haunting the flowery walks where he lies, close by the angel's wings that shadow the bloody well of Cawnpore?

My holiday passed all too quickly. The inevitable morrow saw me once more on my way, with a store of good things snugly deposited at the foot of the dák. I now began thoroughly to enjoy my ride. After all, the experiences of dák-travelling in a new district are not altogether unpleasant, especially when the horses are running smoothly and the sun has not become aggressively hot. Stretched at full length upon his mattress, with a good book and his pipe, store of provision and refreshing beverage at hand, surrounded by ever-shifting scenery,—height and hollow, monotonously barren or luxuriantly green, cultivated or jungle, river and plain, sunlight, moonlight and starlight,—the traveller can give himself up to the *abandon* of the moment, and fancy himself indeed "monarch of all he surveys." His time is, to a certain extent, his own. His word is law. He may set the slavish fashions of civilization at defiance, dress as he pleases, and disport himself generally after the manner of Robinson Crusoe, with limitations. Moreover, he has more than one man Friday, who, barring certain idiosyncrasies of habit and conduct, are, at least, useful in their way. And as for the goat, so well remembered of childhood and the heaven of uninhabited island wood-cuts, well,—life in the Punjab is a chronic state of goat, so far as mutton and milk are concerned. The atmosphere fairly reeks of the creature and—the goatherds.

Arrived at Attock, the horses were unharnessed, and their places supplied by bullocks; for our road now lay for some distance through flats of sand



THE WELL OF CAWPORE.

lowing day. A right royal time I had during my short stay in cantonments. Everything was done to make me comfortable for the time and dyspeptic ever afterwards. The grilled chicken was delicious; the guava cheese unimpeachable; the pale ale, ravishing; the fruits, conserves, and iced *brandy-pani*, a revelation of the true believer's paradise. Dear old L—, with the bright, boyish face, handsome figure, and loud cheery voice! Where

and across the bed of the river. I have but a vague recollection of the scenery just at this point, but I know it was impressive, if somewhat monotonous. We descended from a higher level to the river-bed, and then commenced the tug of war. The patient bullocks crept at a snail's pace through the sand-flats, sometimes almost knee-deep in the drift. The water in the channel was quite shallow, with here and there deeper pools. Before, behind, and around stretched the yellow-grey flats, glistening wild, almost savage, in the new-risen sun. Down from the steeper heights we paced to the hollows, and so up again through the sand-waves. By rock and stone and boulder we luggered and strained wearily along, the sunlight overhead quivering in the ripples and glancing from the cliffs, with the heat-mist palpitating like an atmospheric pulse over the barren waste around. The river crossed, up we strained once more to the higher lands, and, ere long, with an emotion of joy, which only a passenger drawn by Indian bullocks

through an Indian desert may feel, I discovered the stereotyped clay line which proclaimed the dāk-station, and outside, the ponies ready to be attached.

Having bidden farewell to the bullocks, and overcome the usual infirmities of the new team at starting, on we sped again at a gallop, and, ere many hours had elapsed, descried the long lines of the Peshawur barracks. We had entered, indeed, the dreaded precincts of "the Valley of Death." In the far distance, the mountains loomed high and misty against the azure back-ground, and the fierce rays of the torrid sun gleamed down and back with a sultry welcome, as we dashed along the high road at a rattling pace, and finally drew up before the cantonments of the Chestnut Brigade, H.M.'s Royal Horse Artillery, which, with many another corps, both horse and foot, was keeping watch and ward at the treacherous jaws of a still more treacherous defile, the historic Khyber Pass.



## THE BEHRING SEA QUESTION.

BY Z. A. LASH, Q. C.

THE Tribunal of Arbitration now sitting at Paris was appointed under the provisions of a treaty between Great Britain and the United States of America, signed at Washington on the 29th of February, 1892.

The treaty recites that Great Britain and the United States being desirous to provide for an amicable settlement of the questions which have arisen concerning the jurisdictional rights of the United States in the waters of Behring Sea, and concerning also the preservation of the fur seal on or habitually resorting to the said sea, and the rights of the citizens and subjects of either country, as regards the taking of fur seal in or habitually resorting to said waters, have resolved to submit to arbitration the questions involved; and it then provides that the questions shall be submitted to a Tribunal of Arbitration to be composed of seven arbitrators, who shall be appointed in the following manner, viz., two by Her Britannic Majesty, two by the President of the United States, while the President of the French Republic shall be jointly requested to name one, the King of Italy shall be so requested to name one, and the King of Sweden and Norway shall be so requested to name one. The seven arbitrators to be so named shall be jurists of distinguished reputation in their respective countries, and the selecting Powers shall be requested to choose, if possible, jurists who are acquainted with the English language.

The following five points have been submitted to the arbitrators, and their award is to embrace a distinct decision upon each of them, viz.:

1. What exclusive jurisdiction in the sea now known as the Behring Sea, and what exclusive rights in the seal fish-

eries therein, did Russia assert and exercise prior and up to the time of the cession of Alaska to the United States?

2. How far were these claims of jurisdiction, as to the seal fisheries, recognized and conceded by Great Britain?

3. Was the body of water now known as the Behring Sea included in the phrase "Pacific Ocean," as used in the treaty of 1825 between Great Britain and Russia, and what rights, if any, in the Behring Sea were held and exclusively exercised by Russia after said treaty?

4. Did not all the rights of Russia as to jurisdiction and as to the seal fisheries in Behring Sea east of the water boundary, in the treaty between the United States and Russia of the 30th March, 1867, pass unimpaired to the United States under that treaty?

5. Has the United States any right, and if so, what right, of protection or property in the fur seals frequenting the islands of the United States in Behring Sea, when such seals are found outside the ordinary three mile limit?

Should the determination of the foregoing questions as to the exclusive jurisdiction of the United States leave the subject in such position that the concurrence of Great Britain is necessary to the establishment of regulations for the proper protection and preservation of the fur seal in Behring Sea, the arbitrators are to determine what regulations outside the jurisdictional limits of the respective governments are necessary, and over what waters such regulations should extend. Great Britain and the United States have agreed to co-operate in securing the adhesion of other Powers to such regulations, and they have engaged to consider the result of the proceedings

of the Tribunal of Arbitration as a "full, perfect and final settlement of all the questions referred to the arbitrators."

In 1886, three Canadian schooners, while engaged in the capture of seals in the open sea out of sight of land, were seized by a United States revenue cutter for alleged contravention of United States laws, were taken to a port in Alaska, and were subsequently condemned by proceedings in the United States Court for that district. The captains and mates of the vessels were fined and imprisoned.

Diplomatic correspondence immediately ensued; the people of Canada were greatly excited, and as other seizures were made in subsequent years, it looked at one time as if there might be an outbreak between Great Britain and the United States. It is by no means clear that the seizures were in the first instance directly authorized by the United States Government, but as they were made by United States revenue cutters, that Government had to assume the responsibility, and they have never officially repudiated it. On the contrary, they have attempted to justify it on various grounds. They claimed that Behring Sea is *mare clausum*, and as such is subject to the territorial jurisdiction of the United States; they claimed that Russia, of right, exercised jurisdiction over it, and that by the transfer of Alaska to the United States this jurisdiction also passed. Later on they claimed that as the seals visited the islands belonging to the United States regularly every year, and raised their young there, they were to be regarded as the property of the United States wherever found, and that whatever was necessary for their protection in the open sea was justifiable. The claim that the sea was *mare clausum* does not appear to have been seriously insisted on. But it has never been formally abandoned. The claim as to Russia's jurisdiction prior to the cession of

Alaska has been stoutly maintained, and although the claim as to the property in the seals was not made till a late period, and although it is without precedent to support it—yet counsel for the United States spent hours before the arbitrators in attempting to uphold this claim.

A glance at the map, and a statement of distances, should be sufficient to show the absurdity of the first contention.

The distance from the most western island belonging to the United States to the nearest point on the Asiatic shore is over 300 miles, and from the same island to the nearest Russian island it is over 180 miles. The sea from east to west measures 1100 miles, and from north to south 800 miles. Behring Straits, which form a passage way to the Arctic Ocean, are 36 miles wide at the narrowest part. The sea is not wholly enclosed by the territory of any one nation, nor was it when Russia owned Alaska. The name is of comparatively recent origin. The waters now known as Behring Sea were rarely, if ever, called by that name in the earlier part of the century. They formed part of the Pacific Ocean or South Sea. Much more can be said in favor of the contention as to Russia's jurisdiction, but the evidence in support of it falls far short of the jurisdiction now claimed by the United States, and in view of the attitude of that country towards Russia in 1822, as explained below, the inconsistency of the present position needs no comment. In 1822, His Imperial Majesty, the autocrat of all the Russias, for the avowed reason that "the trade of our subjects on the Aleutian Islands, and on the north-west coast of America appertaining unto Russia, is subject, because of secret and illicit traffic, to oppression and impediments," issued an edict establishing regulations, which declared that "the pursuits of commerce, whaling, and fishing, and of all other industry on all islands, ports, gulfs, including the

whole of the north-west coast of America, beginning from Behring Strait to the 51st degree of northern latitude, also from the Aleutian Islands to the eastern coast of Siberia, as well as along the Kurile Islands, from Behring Strait to the south cape of the island of Urup, viz., to  $45^{\circ} 50'$  northern latitude, are exclusively granted to Russian subjects.

"It is therefore prohibited to all foreign vessels, not only to land on the coasts and islands belonging to Russia, as stated above, but also to approach them within less than one hundred Italian miles. The transgressor's vessel is subject to confiscation along with the whole cargo."

When this regulation was brought to the notice of the President of the United States, his then Secretary of State, John Quincy Adams, addressed to the Russian Minister at Washington, by direction of the President, a communication stating that the President had "seen with surprise in this edict the assertion of a territorial claim on the part of Russia," to the Territory referred to, and that "to exclude vessels of our citizens from the shore beyond the ordinary distance to which the territorial jurisdiction extends, has exerted still greater surprise," and Mr. Adams asked for "explanations of the grounds of right, upon principles generally recognized by the laws and usages of nations, which can warrant the claims and regulations contained in it."

The Russian Minister replied that the measure was exclusively directed against the culpable enterprises of foreign adventurers, who, not content with exercising upon the coasts referred to an illicit trade prejudicial to the rights reserved to the Russian American Company, took upon themselves to furnish arms and ammunition to the natives in the Russian possessions, exciting them to revolt. The Minister alluded to the extent of the Russian possessions in the Pacific Ocean, and added, "the extent of sea

of which these possessions form the limits, comprehends all the conditions which are ordinarily attached to shut seas (*mers fermées*) and the Russian Government might consequently judge itself authorized to exercise upon this sea the right of sovereignty, and especially that of entirely interdicting the entrance of foreigners, but it preferred only asserting its essential rights without taking any advantage of localities."

Mr. Adams replied, claiming for the citizens of the Union the right to remain unmolested in the prosecution of their lawful commerce, and protesting against giving effect to "an interdiction manifestly incompatible with their rights." In his letter he uses the following language: "From the period of the existence of the United States as an independent nation, their vessels have freely navigated those seas, and the right to navigate them is a part of that independence."

In a subsequent letter on the subject to the United States Minister at St. Petersburg, Mr. Adams says: "The United States can admit no part of these claims; their right of navigation and of fishing is perfect, and has been in constant exercise from the earliest times, after the peace of 1783, throughout the whole extent of the Southern Ocean, subject only to the ordinary exceptions and exclusions of the territorial jurisdictions."

The result of this correspondence was the negotiation of a treaty between Russia and the United States respecting certain rights in certain parts of "the great ocean commonly called the Pacific Ocean or South Sea." In the negotiation the United States stoutly upheld the rights claimed by Mr. Adams, and as stoutly protested against those claimed by Russia.

At one of the conferences the United States plenipotentiary submitted to that of Russia a paper in which he claimed that the sea in question was a free sea, and that "the right of navigating all the free seas belongs by

natural law to every independent nation, and even constitutes an essential part of this independence."

"The United States have exercised navigation in the seas, and commerce upon the coasts above mentioned, from the time of their independence, and they have a perfect right to this navigation and to this commerce, and they can only be deprived of it by their own act, or by a convention."

On another occasion the United States Minister used the following language : "The existence of territorial rights to the distance of 100 miles from the coast, and the prohibition of approaching to the same distance from these coasts, and from those of all intervening islands, are innovations on the law of nations, and measures unexampled."

The treaty referred to was signed in April, 1824, and, for a time, put an end to disputes between the nations respecting Behring Sea. One of its articles was limited to the period of ten years; a difference of opinion as to the true meaning and effect of this article arose after the expiry of the period named, and some correspondence ensued on the subject. Mutual forbearance, however, obviated any serious conflict between the nations, and, with the exception of an occasional interference with the free navigation and right of fishing in Behring Sea, nothing more happened which called upon the United States Government to re-assert its rights in the vigorous manner of Mr. Adams in 1822.

The general impression is that the territorial jurisdiction of a nation extends but one marine league (three miles) from the sea coast, and eminent writers have assumed that such is the law of nations. The reason assigned by the earlier authorities is that a marine league is the distance of a cannon shot, and that a nation has the right to control so much of the sea as can be protected from its shore. The rule, however, did not universally hold good, and in many cases by cus-

tom or treaty the right of a nation to control a greater distance has been recognized, but no instance ever existed which could, by any kind of analogy or reasoning, be cited as a justification for the pretensions of Russia, or as an answer to the position taken by the United States in 1822. If the law relating to the subject be founded upon the principle suggested, viz., the right to control so much of the sea as can be protected from the shore, it is worthy of consideration whether the increased range of the guns of modern warfare does not enable a nation to extend its territorial limits beyond a marine league from the shore. This question has not yet been decided by the nations, but Phillimore, an eminent writer on International law, says, "the great improvements recently effected in artillery seem to make it desirable that this distance should be increased, but it must be so by the general consent of nations, or by specific treaty with particular states." Vattel says : "Powers extend their dominion over the sea as far as they can protect their rights—it is of importance to the safety and welfare of the State that it should not be free to all the world to come so near its possessions." Hautefeuille alleges that "the limit of territorial sea is fixed by the principle from which its territorial character arises, as far as it can be commanded from shore." Bowyer concludes that "between nation and nation all that can reasonably be said is that in general the dominion of the State over the neighboring sea extends as far as her safety renders it necessary and her power is able to assert it."

A writer in an American newspaper thus graphically sums up the situation :—"The claim of Russia to sovereignty over the Pacific ocean north of the 51st degree of latitude, as a closed sea, was considered by our Government in 1822 as being against the rights of other nations, but now, as we have bought Russia out, it is all right.

One's opinions change according to one's standpoint, and besides, cannons shoot farther now than they used to." After the spirited remonstrance against Russian pretensions with respect to Behring Sea in 1822, one would have have thought that the United States would not in 1886 have taken an opposite position with respect to the very same sea.

What rights did the United States acquire from Russia? The treaty of cession of the Russian possessions in North America to the United States was concluded, ratified and proclaimed in 1867, and, for the consideration of \$7,200,000, His Majesty, the Emperor of all the Russias, ceded to the United States "all the territory and dominion now possessed by his said Majesty on the continent of America and in the adjacent islands, the same being contained within the geographical limits herein set forth." The limits referred to do not pretend to include the whole of Behring Sea.

The Alaska Commercial Company held from the United States Government the exclusive privilege from 1870 to 1890 of taking fur seals in certain parts of Behring Sea. The avowed reason on the part of Russia, that the Edict of 1822, excluding foreign vessels from approaching within one hundred miles of the coast, was exclusively directed against the culpable enterprises of adventurers who carried on an illicit trade with the natives, was clearly not the only or chief reason for her action at that time. The Russian-American Company then held from Russia the exclusive right of taking seals in the locality in question. This company was a powerful organization and possessed great influence at court, and there is little doubt that the seizure of the Canadian vessels in 1886 was brought about by similar influences to those which led to the passage of the Russian Edict of 1882, viz., by the action of a great company whose interests were being interfered with by foreign competition. This

probably was the moving cause in both instances.

But for the great value of the seal industry, it is not likely that any difficulties respecting the international jurisdiction would have arisen, and although the course pursued by the United States in seizing Canadian vessels in open sea and out of sight of land, cannot be approved or justified, yet in view of the great importance of preventing the indiscriminate slaughter of seals, and the consequent destruction of this great industry, and in view of the fact that the result will unquestionably prove beneficial to the world, even a Canadian cannot suppress the thought, "All's well that ends well."

Nations are hard to move, and some such event as the seizure by one, of the vessel of another, was probably required to rouse those interested to a proper understanding of the situation, and to the necessity for joint action.

A short account of these marvellous seal fisheries will help to an appreciation of the general position. The seals frequent Behring Sea in great numbers from the middle or towards the end of spring till the middle or end of October, a period of between five and six months. During this time they have rookeries on the Islands of St. Paul and St. George, which constitute the Pribyloff group and belong to the United States, and on the Commander Islands, which belong to Russia. By far the larger number resort to the Pribyloff group. The rest of the year they are supposed to spend in the open sea south of the Aleutian Islands.

The migration northward, is made through numerous passes in the long chain of the Aleutian Islands, above which the courses of their travel converge chiefly to the Pribyloff group. The females generally give birth to their young within two weeks after reaching the rookeries, and soon after they resort to the sea for the food which they require to enable them properly to suckle their young. The

male seals, or bulls, as they are commonly called, require little food while on the islands, where they remain watching the rookeries and sustaining existence on the large amount of blubber which is secreted beneath the skin, and which becomes gradually absorbed during the five or six months. The greater number of seals found in the water during the summer and early fall are females in search of food, but it is impossible there to distinguish females from males.

When shot and killed in the water, a seal generally sinks almost immediately, and great skill and quickness are required on the part of the hunter to reach, with his boat or canoe, the place where the animal was, in time to recover it ere it has sunk too deep. Those who have seen seal shooting on the Lower St. Lawrence will appreciate the difficulty, and will readily believe that large numbers of the animals killed in Behring Sea are lost. One of the special agents of the Treasury Department, in a report to the Secretary of the Treasury at Washington, states his conviction that not more than one seal in ten killed or mortally wounded in the water is landed on the boats and skinned, and he thus estimates that to get the 30,000 skins which were taken in this way in 1887, 300,000 seals were killed.

It is difficult to believe that such an estimate is reliable. Mr. Bayard, writing to Mr. Phelps, in February, 1888, says that some authorities state that not more than one out of three of seals so slaughtered is ever secured, and he adds, "this may, however, be an over estimate of the number lost." Whatever the true proportion may be, it is evident that if indiscriminate destruction of seals in the water by firearms or other similar means be permitted, the result may ultimately be disastrous to the enterprise, and, in any event, large numbers must be slaughtered which are lost entirely, and large numbers of females, some bearing young, must also be killed.

In the letter already referred to, Mr. Phelps refers to the result in other parts of the world, where, in the absence of concerted action among the nations for its preservation, the fur seal industry has ceased, e.g., among the South Pacific Islands and on the coasts of Chili and South Africa, the Falkland Islands and adjacent seas. In former years hundreds of thousands of skins were obtained yearly at these places; but, in 1880, according to the best statistics, less than 1,500 skins were taken at the Falkland Islands, and, in 1888, out of an estimated aggregate yield of 185,000 skins from all parts of the globe, over 130,000, or more than two-thirds, were obtained from the rookeries on the American and Russian Islands in Behring Sea.

An estimate has been made of the numbers of breeding seals on the Pribyloff Islands in 1886 and 1887. The sea margin of the various rookeries was measured, and the depth inland from the sea. The number of square feet was thus ascertained, and, allowing one seal for every two square feet, the result was the astounding number of over six millions breeding seals. This does not include the young male seals, which are not allowed by the old bulls to frequent the rookeries, and which are compelled to "haul out" on other parts of the islands; so that the actual number, if the above estimate be at all reliable, must far exceed six millions. Two square feet to a seal certainly seems a very small allowance; but, whatever the proper space may be, it is evident that under any circumstances the numbers frequenting these islands during the summer months must run up well into the millions.

Mr. A. Howard Clark, in response to a request made by the United States Treasury Department, prepared a memorandum as to the fur seal fisheries of the world in 1887. In it he says:—"A few men are still living who participated in the Antarctic seal fisheries years ago. Their stories of the former abundance of fur seals I have

obtained in personal interviews. As to the manner of destruction, there is but one thing to say: an indiscriminate slaughter of old and young, male and female, in a few years results in the breaking up of the largest rookeries, and, as in the case of Massafuera and the Falkland Islands, the injury seems to be a permanent one. As an instance, the South Shetlands were first visited in 1819 when fur seals were very abundant, two vessels in a short time securing full fares. In 1820, thirty vessels hastened to the islands and in a few weeks obtained upwards of 250,000 skins, while thousands of seals were killed and lost. In 1821 and 1822, Weddell says, '320,000 skins were taken. . . . The system of extermination was practised, . . . for whenever a seal reached the beach, of whatever denomination, he was instantly killed and his skin taken; and by this means, at the end of the second year, the animals became nearly extinct. The young, having lost their mothers when only three or four days old, of course died, which at the lowest calculation exceeded 100,000.' In subsequent years, till 1845, these islands were occasionally visited by vessels in search of seal skins, but never after 1822 were many animals found there. About 1845, the Antarctic fur sealing was abandoned."

Mr. Henry W. Elliott, writing from the Smithsonian Institution to Mr. Bayard, uses the following vigorous words: "Open these waters of Behring Sea to unchecked pelagic sealing, then a fleet of hundreds of vessels, steamers, ships, schooners and what not, would immediately venture into them, bent upon the most vigorous and indiscriminate slaughter of these animals. A few seasons there of the greediest rapine, then nothing left of those wonderful and valuable interests of the public, which are now so handsomely embodied on the seal islands."

The old bulls drive away the young males from the rookeries and they are compelled to "haul out" on other

parts of the Islands. They are driven inland by the hunters and killed by clubbing when a convenient distance from the salting houses. Experience has shown that the fur of a seal is most valuable when the animal is three years old, the proportions being, at present prices, that a two year old seal is worth \$15 or \$16, a three year old \$16 to \$19, a four year old \$16, and a five year old only \$2.50.

When killing the seals on land, care is taken to select as many as possible within the ages of two and four. The seals walk as if on four legs, raising their bodies from the ground as they move. Under favorable conditions they travel about a mile and a half an hour: the longest drive made does not exceed eight miles.

According to the report of Committee of Congress in 1889, the total amount paid by the Alaska Commercial Company under their contract with the government up to June 30, 1888, was.....\$5,597,100

The total amount received from customs' duties on Alaska dressed seal skins imported from England (where the raw skins are for the most part sent to be dressed) was..... 3,426,000

To which should be added the customs' duties on seal skins taken by the Company on islands belonging to Russia..... 502,000

Grand total.....\$9,525,100

The amount paid by the United States to Russia in 1867 for Alaska was... \$7,200,000

The total amount expended up to June, 1888, for salaries, travelling expenses of agents of the Treasury Department in Alaska, was about..... 250,000

And for the expenses of the revenue cutters cruising in Alaskan waters about	150,000
Total.....	<u>\$7,600,000</u>

Deduct this from the \$9,525,100, and the handsome surplus of \$1,925, 100 remains. The \$250,000 and \$150,-000 above mentioned seem to include all expenditure by the Government in connection with Alaska from 1867 to 1888. The receipts have been almost entirely directly connected with the seal industry.

No wonder that a vigorous effort should be made to prevent any course which might threaten the destruction of this industry.

A difficulty in the way of a joint arrangement among the nations inter-

ested for the preservation of the seal fisheries, is doubtless the fact that the nations owning the seal islands have so great an advantage. Those who have to seek the seals in open sea cannot readily distinguish males from females, or old from young, and cannot fail to kill, if fire-arms be used, large numbers which are entirely lost. Moreover, it is comparatively easy to check the take of those who kill on land, but not so easy to watch or check the work of a sealing vessel.

Let us hope that some way out of the difficulties may be found, and that the great object in view may not be sacrificed by any narrow-minded, short-sighted or selfish considerations on the part of any.

Toronto, May, 1893.



## TALES OF WAYSIDE INNS.

### NO. III.—THE LUMBERMAN'S TALE.

BY HENRY LYÉ.

The term "Lumbermen" is generally applied to men whose avocation is that of taking out squared timber from the wild forests, and not that of packing away old furniture or pledges in attics and garrets; yet these pursuits, so diverse in their nature, have given synonymous appellations to "Lumber" and "Cumber," both of which are derived from the old Lombard money-lenders or pawn-brokers.

The dense woods, encumbering the land required for agricultural purposes, were a great hindrance and trial to the first settlers, who had to clear away these as well as the fallen giants of the forest, lumbering the ground, before they could commence its cultivation; even as we clear away the old furniture and useless lumber, which accumulate until they cumber the rooms we wish to occupy for other purposes.

The term "Lumber," as applied to trees, appears to have been originally a local or domestic one, becoming a mercantile appellation when markets were found for the timber of the forest, until which time even the most beautiful specimens of walnut, oak, red cedar, ash, cherry, butternut, etc., were so valueless as to be burnt in the log piles to get rid of them, whilst the softer wood of the pine and the white cedar were utilized for rails and buildings, because they were more easily wrought.

Now and then a settler would make a door-step of oak or walnut, or a whiffletree, or a neck-yoke, or a wagon-tongue, of white ash, or an ox-yoke of soft maple; but, generally speaking, the timbers we now esteem as the most valuable were looked upon as the

most troublesome, because of their hardness and weight, and the consequently more arduous labor entailed in the cutting, piling and burning, necessary to their destruction.

Some of the first settlers in Prince Edward County built out-houses of red cedar, and I have found barns whose foundations were black-walnut, so utilized as the easiest way of getting rid of it, as well as because it does not rot. Indeed it is but a few years since the elm of Kent County in Ontario had no value, so that it was delivered at the stave-mills for the cost of its cutting and delivery, no allowance being made for any value for the timber itself.

Whilst the Lumbermen have employed a great number of men, their operations have been one of the principle causes of the comparatively slow growth of the population of Canada. The lumberman finds a forest of noble trees;—he leaves behind him a wilderness of stumps and boughs and rocks; he carries food for his men and cattle and teams from the settled country; his men are brought from a distance; if he employs teamsters from amongst the settlers living in the neighborhood of his operations, they become unsettled in their habits, unfitted for agricultural pursuits and useless for any occupation other than lumbering.

The earliest and most remarkable emigration from Canada was from the valley of the Ottawa from 1870 to 1878, by which innumerable half-cultivated farms were abandoned, and by which Saginaw, Bay City and other places in Michigan were filled with Canadians, hardy, industrious and homesick.

Similar consequences must always ensue whenever the exports of a country consist of raw materials, instead of finished products, because such a system turns an abundance into a void. The operation is similar to that of a plague of locusts or of rats, which destroy everything before them; or of the rabbits of Australia which prevent the sheep from their proper food, or of the drought which burns up the roots of the grasses, or of the flood which overwhelms not only the dams, bridges, mills and houses, but also the inhabitants of the valleys.

Hence it is not from party-political motives alone, that the opposition to the export of saw-logs arises, but from the feeling that Canada cannot extend its settlements, or increase its population, if the policy of denudation without manufacture or replacement is continued.

There may be politicians whose practice it may be to oppose everything for the purpose of embarrassing an executive, and there may be governments who play grab for immediate gains, on the principle of "after us the deluge," but those who are truly statesmen and patriots will always consider, not the immediate advantage over an opponent, but the true welfare of the country and its people;—such men will always desire that they should be enabled to leave everything which is within the proper sphere of their influence in a condition better than that in which they found it, and will not promote either deserts or deluges.

The timber on immense areas is sold *en bloc* to the lumberman on such terms as enable him to cut it when and as he pleases, without any obligation other than ground-rent and stumpage. It follows naturally that lumbering operations are principally in districts remote from towns and villages, and in which the settlements, if any, are few and wide apart. There may be a blacksmith's shop and a tavern and a few squatters, or it may be that, in

addition to these, the lumberman may have sent up men to cut marsh hay or to take care of the camp and buildings, and these men may have taken their wives and children with them, but these habitants offer no inducements to the professional man, as he could not make money amongst them; he would lose tone for want of educated society and would lose courage for want of prospect of future success. There may be occasional need for a surgeon, but it generally happens that the wounds which would fall under his care are incurable, as the man crushed by a falling tree, or jammed by a collision of saw-logs, has not much chance of recovery.

However, when there are families in these backwoods districts, the women and children suffer from the ills which flesh is heir to, intensified to them by the exposure, monotony and malaria incident to new districts, as well as by the ignorance and bad cooking which prevail amongst the women; whilst the ailments of the men arise generally from bad whisky, water-soaked clothing and wounds.

However undesirable these localities may be to the professional man, to whose success "the madding crowd" is necessary; there are, *en route* to these backwood districts, good inns which depend for their patronage upon the lumberman, his employees and his teams, with occasional visitors on business or pleasure bent. One of these inns was some few years ago situated by the side of a strait which forms the junction between two of the lakes in Muskoka. There are amongst the lumbermen some good, educated and liberal-minded men or there would not be any foundation for this tale. It sometimes happens, as in this case, that the inns are strictly temperance houses, and that the innkeeper is the postmaster, storekeeper, magistrate and general adviser of the locality.

After an exceedingly hot and dry summer, an outbreak of fever and ague brought with it a complication of sick-

nesses amongst the women and children of families too poor to pay for medical attendance, so that when my friend the lumberman went up in the early fall, to see and decide as to the preparations necessary to the operations of the ensuing winter, he and the innkeeper had a long talk about the distressed condition of the women, who were quite worn out and helpless from sickness, want of sleep and general hardship.

Full of pity and compassion, the lumberman left some money to relieve, as far as practicable, the most pressing wants, and promised to consult his own medical adviser in Toronto as to what could be done to relieve the general sickness. On doing this he found that no doctor would leave his own practice to labor amongst a thinly scattered people where he might be only temporarily required and poorly paid, but the gentleman he consulted advised him to make arrangements with a trained nurse whom he highly recommended, and whom he would instruct as to the supply of simple remedies she should take with her.

The lumberman paid for the medicine chest, the travelling expenses, and three months' remuneration to the nurse, and she set out for the scene of her labors, where she proved a blessing and a comfort to many a weary woman; indeed, there is no doubt but that many a now stalwart youth and many now blooming maidens owe their lives and health to her kindly and skilful ministrations.

As the end of her agreed term approached, she had become so beloved for her sweetness of disposition, her kindly sympathies and the good effects of her presence, prayers and services, that the people were loath to lose her, and so met together at the inn to consult as to the best method of keeping her amongst them, when it was agreed that each family should contribute a small sum, so as to provide a moderate regular income, which, with her freedom from expenses for board and res-

idence, was such as was satisfactory to her, but was much less than would have enabled any medical man to pay his way; indeed, the nature of her services generally was such that no male person would have adequately filled her place, as, in addition to her experience and skill as a nurse, she was a sincerely religious, sensible woman, whose prayers and readings and conversations healed many a wounded heart, comforted many an anxious conscience and sustained many hopeful aspirations.

The summer visitors to Muskoka now know it as a place of beautiful scenery, of lakes of pure soft water, studded with fairy islets, offering opportunity for boating, fishing, shooting and mayhap flirting, but these attractions became known very gradually as clearing, draining and other improvements rendered it free from malaria, and made it one of the most attractive of health-giving resorts.

Before Muskoka became so popular as it now is, occasional parties of tourists visited its lakes and lingered on its islands. With one of these parties there came up a newly fledged M.D., who, filled with undigested knowledge of his profession, but without that human sympathy which generally enables the medical fraternity, was full of zeal for all its exclusive rights and privileges.

This fledgling learnt of the presence and practice of "Our Nurse," and, to his horror, learnt that she had sent a dose of rhubarb and magnesia for an ailing child in the very inn in which he was a guest.

He might have borne this, but on the next morning he was made aware of the fact that she also had been in the inn for most of the night, nursing another child through an attack of croup, and, after administering hot baths and goose oil, had sent to the store for syrup of squills, which she had ordered to be given to the child every little while until the hoarseness disappeared.

To pile up the agony, he found "Our Nurse" had been hurriedly called away to attend a poor woman who had scalded her foot by the upsetting of a kettle of boiling water, and that there was actually a boy waiting in the sitting-room until the hostess packed up some sweet oil and cotton-batting and fine flour for her use.

As though the elements had conspired together to bring the sum of such enormous iniquities to his notice, he heard the boy tell the hostess that "Our Nurse" wanted some materials, which he named, for the compounding of an anodyne liniment for an old woman's knee, which was "mortal bad."

These accumulations of offences against Section 45, Chapter 148, R.S.O., (the Act respecting the profession of Medicine and Surgery) were quite too much for our fledgling, who had lately been inducted into the profession, and who, consequently, had studied the law and felt it incumbent upon him to vindicate its majesty; so, learning that our host was a magistrate, he forthwith laid an information against "Our Nurse," upon which summons and sub-pœnas were issued.

When the witnesses appeared, they were accompanied by a large number of persons who refrained not from the premature expression of their opinions, nor from remarks not complimentary to the complainant in the case. One

of them said, "They are using tar at the landing, firing up the old steamboat." Another asked as to the price of feathers. Another enquired as to whether travelling by rail was more pleasant than walking. Another as to whether the water was *very* cold at that time of the year. Another as to whether a man could run all the way from there to Toronto; and so on.

The crowd being reduced to order, the business of the magistrate's court proceeded; the witnesses were examined, and the defendant was found guilty of many transgressions against the Act respecting the Profession of Medicine and Surgery, and liable to the penalties therein provided, which were duly inflicted, so that the majesty of the law was fully vindicated; but, as the Justice of the Peace intimated his intention to pay the costs and fines out of his own pocket, it is somewhat doubtful as to whether any of the amounts have reached the legal depository.

Since these occurrences took place, the locality has been greatly improved. *Nerves* have been introduced, and a regular doctor now finds ample practice amongst patients whose toothache has become neuralgia or tic-doloroux, whose "roomatiz" is now sciatica or lumbago, and who need tonics and aperients to overcome the effects of self-indulgence and fashionable dissipation.



## RARE SPECIMEN,

*A Canadian Sketch.*

BY J. H. STEVENSON, B.A. *... .*

SOME of the finest bits of Canadian scenery are found abounding among the "back lakes," as they are called, in the county of Peterborough, Ontario. These lakes are so numerous that they repeat on a larger scale the land and water phenomena of the Thousand Islands. Nature here boasts of such an abundance of cool, dark, clear water, that one is stumbling on lakes everywhere. Lakes, large and small, long and broad, deep, but never shallow. Lakes on the mountains and in the valleys, and sometimes even in the *lakes*, one notable instance of this being Round Lake, a beautiful body of water in the middle of an infant island, that nestles with many others in the bosom of Stoney Lake. Leaving the main body of water, Stoney Lake, and scrambling up a rocky shore that descends almost perpendicularly into the water, and that makes landing from the Peterborough canoes, so commonly used here, somewhat difficult, one has to go only a few yards across the granite, or over the carpet of moss and soil with which nature conceals the rock, then through a thick growth of trees, when the loveliest scene breaks on his enchanted gaze. A little lake, almost perfectly circular, diameter twenty or thirty yards, and shores gradually and regularly sloping to the water's edge all around, looks up through the drooping foliage, hanging its festoons on every side, to the blue above. Our party stood in silence looking on the scene, so chaste, so secluded, it might have been a lavatory of the gods; nor could we have felt surprise if some Naiad had tripped down the shore to bathe her brow from its cooling

depths, or to sport upon its surface. Such is a lake within a lake. Then there are rivers expanded into lakes, and chains of lakes, families clasping hands and loath to separate, as they dance away towards the sea. Lakes are here with such a wealth and variety of the finny tribes that the angler has need of patience no more; rock bass, trout, perch and maskinonge being had for the trouble of lifting them into the boat. There is scarcely a foot of scenery anywhere that would not arrest an artist. Great grey mountains of Laurentian granite lift to heaven their giant bulk, while here and there upon their brow, stand, as sentinels, naked, weather-whitened trees. Not a mile away will be found another island, scarcely lifting its head above the surface of the water, with deep, rich soil, surface rolling and covered with luxuriant grasses. Everywhere wee modest islands, fit for a fairy's home, lie low in the bosom of the water, while bays curve round their forms with tenderness, and kiss their feet with lapping waves. On these latter, one paddles his canoe as in a scene enchanted, through a wealth of water lilies, that look up smiling through their tears, with every inch of their snowy surface opened to the sun. As I look into the water lily, with its marble whiteness in a cup of green, it seems to me the water nymph reaches out to me a chalice of emerald filled to overflowing with the white emblem of purity, and bids me drink and be forever happy.

The north shore of Stoney Lake is bold, grey and stern. The coast is broken and rocky, with here and there a river—utilized by the raftsmen

in getting their timber from the northern wilds to the region of the sawmill—that pours its torrent over bluffs and round sharp curves in its impetuous haste to see the sights of the lake, a vivid picture of the youth who thoughtlessly leaves the quiet rural or village home to see and feel, and perhaps be lost in the throbbing life of the great city. The south shore is rough and wild also, though not so much so as the north; does not contribute any feeders to the lake, and is more adapted to agricultural pursuits, if one is satisfied with a very moderate amount of success.

It was on the south shore that I first saw my rare specimen, which, by the way, was not a geological one; nor was he a fossil, though I may be able to assign him to his "class" by and by. What furnishes to us rarer specimens than this human nature of ours, with its variety and possibility continually preaching to us of the infinite? Yes, he was a man; and the most wonderful mixture of gruffness and true politeness, of crossness and good-nature, of simplicity, with a great accumulation of knowledge, it has been my privilege to meet. Now add to this an untold variety of peculiarities, cropping out in unexpected places, in speech, in manners, and in actions, and you have him in merest outline.

He had a massive frame, every joint of which seemed a misfit; and when he walked, one leg of the trousers caught up on the top of an extended bootleg, his cap dragging on the side of his head, his shirt collar open sailor fashion, his sleeves rolled up after the manner of a cook, he reminded one of the uncertain attempts of a flying machine. Every movement was a dissonance, and we could never prophesy where he would go. His hair was dark, tinged with iron grey, and tufty; his eyebrows thick, protruding and shaggy; his features heavy, and betraying nothing of his character, but on the contrary often leading one astray; his manner and speech abrupt

in the extreme, especially his speech, which came in startling jerks, and was a revelation of the possibilities of the vocal organs. I stood in awe of him for a long time, his manner was so jerky, his speech so hard to understand; and besides this he never laughed, nor even smiled. Many a time was I provoked to mirth by his strange and utterly unannounced gestures, and yet I might not laugh lest I should call down his anger on me, or he should turn into one of the giants that the nursery books of my youth spoke about, and eat me up.

His house was a study, worthy of the World's Fair. It was situated on a little clearing, that sloped by stony ridges down to a bay shut off from the lake and land-locked by three or four islands some distance from the shore. He had been its architect, its contractor and its builder, and it was a fair embodiment of himself. A long, low, tunnel-like passage, pointing towards the lake, on the door of which was written the word "hollow," answered as a kitchen; while joining this, so as to make a figure like the letter L with an obtuse angle, was a similar construction somewhat wider than the former, and answering the purposes of a sitting-room, a dining-room, an art gallery and a parlour. The whole was roofed with shingles he himself had split from cedar blocks and shaped with an axe. A few feet of land was enclosed with an indefinite sort of fence—home-made also, the pickets having been split from cedar, and utilizing, in its rambling march round the mansion, any stray stump of the "forest primeval" that had been spared when the ground was cleared. Within this enclosure an attempt had been made to cultivate flowers, the result being that an infantry of hollyhocks and sunflowers bowed and bobbed and "presented arms" to the visitor from every direction.

The interior of the house held for me another surprise, revealing as it did that my rare specimen was an ar-

tist. The walls were sheeted with "dressed" lumber, and were literally covered from ceiling to floor with paintings done in oil colors, and no parsimony practised in laying on the same. The most prominent painting occupied the central part of the south wall, the subject being a schooner, fully rigged, scudding before the breeze. "Each mast and sail and rope" were there faithfully represented. The sailors, painted in gaudy colors, were busy about the deck or climbing the ropes. All the little details of deck and hull were reproduced; while, with full sail spread, the Union Jack floating from the mast, she was making her way through yeasty waves of bright blue paint. The old man's eye softened a little, and his manner almost verged on the enthusiastic, as my friend and I stood with subdued, and I trust appropriate, admiration before his effort. It was a memory of his early life; being a representation of the vessel in which, as a British tar, he had many times crossed the Atlantic and sailed to foreign ports. It seemed somewhat inexplicable to me that, after having been a rover for the greater and better part of his life, he should settle down here in the north, twelve or fourteen miles from any village, with no neighbors near, with scarcely the sight of a human being except during the tourist season, and then only by chance, as he was not well-known or easily approached. Still I was convinced, as he named each rope for us, and regarded the picture with evident affection, and especially when I saw him look out with satisfaction on the lake at his door, that he was "true to his first love."

The next picture noticed was a corollary of the one just described, furnishing evidence of the various foreign ports into which he had sailed. It was a group of heads; a sort of anthropological study, by the way. There were heads—Indian, American, Malay-an, Chinese, Japanese, African, and

some that rather puzzled me, leading to the suspicion that they were supplied by imagination. However, here they all are, their animosities and barbarities gone, made to neighbor together in peace at the magic touch of my artist.

Another was a love scene before a log cabin in the woods, indicating that the hero of this sketch was not without an appreciation of the sublime passion, especially when found in a romantic setting. This subject, indeed, was considered too important to be treated on one canvas, or rather, I should say, one board; hence it appeared as companion pictures. The first represented a cabin, out of which have just come two women, evidently mother and daughter, to greet a youthful stranger who was standing outside the garden gate, holding by the bridle a somewhat originally-proportioned donkey. In the second, the principal figures were the same, except that the elder lady had turned her back, and the ardent youth was improving the opportunity by reaching over the fence to imprint a kiss on the cheek of his not unwilling lady-love. The artist failed in his evident desire to paint the report that followed this osculatory act, but from the bellows-like appearance of the youth's cheeks, I have no doubt it awakened resounding echoes from distant parts of the forest, and sounded a note of warning to the mother's heart of the possible appropriation of one of her home treasures in the near future.

One of the pictures, at least, showed a sense of humor, as I discovered to my discomfiture in the following manner. My friend, who had visited this gallery of art before, called my attention to a melancholy, tearful picture at the end of the room, the subject of which was a donkey's head. Around it was written some legend, that I approached nearer to read, expecting thereby to solve the mystery of this soulful sadness. Imagine my surprise when I was greeted with the following

question, evidently words intended for the donkey's mouth : " When shall we two meet again ? " I turned around, mentally abusing my unfortunate curiosity, only to find my friend shaking with suppressed laughter, and the painter of the picture uttering some abrupt gurgling sounds in his throat, and not looking at all displeased. This did not lessen my confusion, and my studies in art ceased forthwith.

The old man had his coat of arms painted promiscuously around the place. Whether it was an original or borrowed design I cannot say, but certainly it was ingenious and in every way worthy of him. One day, my friend and I, having left our canoe at the wharf, and walked up the winding, stony and uncertain path that led to the house, found him in the ferment of excitement. He had just completed the building of a new frame barn, and had painted on a board about three feet square his coat of arms, which I learned, more from his pantomime than his words, he wished with our assistance to hoist to its place in the gable end of the new building. He had bolts and staples all ready, holes bored, a pulley fixed at the ridge board, and through it a long rope attached to the coat of arms. He had made an elaborate preparation, as if he were about to raise a mast; and now this old sailor of sixty mounted a ladder, leading against the barn, as nimbly as a youth, and commenced shouting to us land-lubbers the most unintelligible commands, couched in strictly nautical terms, but again his frantic gestures came to our assistance, and besides this, there being but one thing to do, we laid hold of the rope, and soon had his brilliant escutcheon in its place. In a few moments it was fastened, and we stood off to get the effect. The ground work of the picture was white, the border blue, while from the centre, painted with blue and

red colors, were three legs joined together at the thighs, flexed at the knees, and reaching out towards the edge of the board like three spokes of a wheel, with equal angles between each. Around the edge of the board was printed in bold, black letters the proud challenge, " Turn me which way you will, I stand." I shall never forget the look of the old man as he stood off in the distance to admire this crowning piece of work. No artist, not even the one whose life was saved by a fellow-artist daubing his beautiful picture on the cathedral's ceiling, when he, the painter, had backed dangerously near the edge of the scaffold to get a view of his work, ever surveyed his effort with more enthusiasm than did my hero. I never saw him get really enthusiastic before, or display much feeling, but now, pointing to it in its place, and as pleased as a boy, he exclaimed : " See ! the three legs and the three Cleggs," alluding, no doubt, to his wife and adopted daughter, who shared his home and peculiarities, in part, here in the woods.

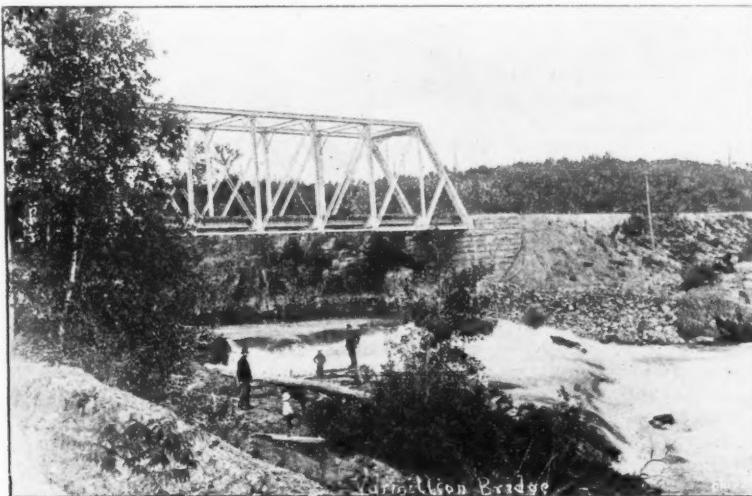
There was also evidence that his classical education had not been neglected. This I discovered one day on approaching the outer gate leading to the house, for here inscribed on the left of the entrance instead of the legend *Cave Canem* still unearthed among the ruins of Pompeii, I read this : " Beware of the dog and Rum." This latter addition to Roman wisdom was no doubt considered necessary by the alterations which modern agricultural pursuits have made when compared with the days of Virgil. And I am sure that any one who has had painful experiences with that autocrat of the pasture-field, to which allusion is made in the above terse sentence, will conclude that the wit of my " specimen " was as keen as that of the Roman, and his philosophy as genuine.

## THE NICKEL REGION OF CANADA.

BY H. A. HILYARD.

THE districts of Nipissing and Algoma, each large enough to make an European kingdom, and near to and readily accessible from the most populous parts of Canada and the United States, are yet howling wildernesses of primitive rock, rent, and torn and worn into brules, fissures, chasms, through which pour copious rivers from the "Height of Land," as the Laurentian backbone, which separates

many a pristine forest in which to operate, though in many a section the best lumber has fallen before his axe, or the great forest fires have swept away the giants of the forest primeval, and left wastes of slender spires of a newer growth. Miles and miles one may travel by canoe or road without seeing a human habitation, or a single human face, but even in the solitudes of this wild land, other



C. P. R. BRIDGE ON VERMILLION RIVER.

the basin of the St. Lawrence and the great lakes from the basin of the great northern sea of Canada, is called. Beautiful as many a mirror-like stretch of river or glassy lake may be, or roaring torrent and deafening waterfall; luxuriant as many a river valley in this granitic region is, the greater part of the country is comparatively barren from an agricultural point of view. Here the lumberman still has

sounds than those of the waterfall or the teeming animal life present everywhere may be heard, for over an extensive belt echoes the whistle and roar of the railway train, a new comer, which even here amid the rocks is gathering many a nucleus of future settlement. But these settlements are not to be founded, as in the remainder of the great province of which Algoma and Nipissing form part, on farming.

Many small valleys, sometimes several miles long, are remarkably fertile, although bordered by barren rocks, and farming will, no doubt maintain its thousands—perhaps its tens of thousands—but will be entirely subsidiary to and dependent upon the greatest industry of the future of this region—mining. Here lies untold wealth—such as no region in the world, even in the days of gold-laden Spanish galleons, or the early years of the California and Nevada mining frenzy, has yet revealed. Gold, silver, platinum, are here; exhaustless beds of iron ore, and great bodies of copper. But it is not owing to any of these that the two districts loom up to-day before the eyes of the entire commercial world as a land of promise, but because of the vastness of the nickel deposits found here in recent years. The paltry output of the far away French islands of New Caledonia, which until recently furnished the greater part of the nickel of the world, has been counted only by hundreds of thousands of poundsavoirdupois; here the output is counted by thousands of tons of ore, and Commodore Folger and Lieutenant Buckingham, sent here by the United States Government to report on the possibility of obtaining a large and continuous supply of nickel for naval armor, estimated the amount of ore visible on the surface of the ground to be 650,000,000 tons. So stupendous a quantity might well suggest—that it had been reported ten years ago—that it would be ample for the world for ages to come; but almost contemporaneous with the discovery of nickel in Ontario came the discovery that

nickel was capable of profitable application in a thousand and one ways to the uses of life. The result is that nickel now stands foremost among the metals in the new developments of the early future, and to the nickel region of Ontario, thousands, both in America and Europe, look for the Eldorados of the coming years, and for colossal fortunes to mining capitalists. The possession of these nickel beds is of vast importance to Canada; in fact, its possible effect in the industrial development of the Do-



WINTER ON SPANISH RIVER.

minion can scarcely be exaggerated.

In visiting these districts, the first attraction that engages our attention, on arising in the morning, after an all night's ride on the Northern train from Toronto, is the large sheet of water called Lake Nipissing, which, if much smaller than any of the great lakes of Canada, might yet be almost classed as another great inland sea, for it stretches away to the west over a distance of fifty-five miles, and to the south about twenty-five miles. A

scene of beauty it is, and one, too, appealing at once to the commercial sense, for the suggestion of mineral wealth is made at the threshold of the nickel country. As we stand on the platform of the Canadian Pacific station at North Bay, we see, at a distance of twenty miles, the Manitou Islands. On these islands is to be found a very rich deposit of iron ore. A short distance to the west of these is another small island, called Iron Island—so named because it is supposed to be one immense deposit of that ore. The captain of a steamer tells me that when near this island his compass is useless.

over these rough rocks for, perhaps, six or eight weeks. At Sudbury, where we soon arrive, we can fully "take in" his appearance. There he stands, unshaven, clothing torn, shoe-packs worn out from coming in contact with the rough rocks over which he has travelled, with his pack thrown carelessly over his shoulder. This pack is very light just now, though any one of us would consider it load enough, if we had to carry it from early morning until night. It contains a small cotton tent, a small axe, a prospecting pick, perhaps a change of underclothing, a tin cup, a small tea pail, and the remnants of his provisions, which consist of bacon, hardtack and tea, with sometimes a snack of fresh fish, when he has happened to be camping near one of the streams or lakes so numerous throughout the district and abundantly supplied with black bass, pike, pickerel, and maskinonge.

Now for the mines. Here at Sudbury, which is situated on the main line of the Canadian Pacific railway, just at the junction of the



VERMILLION LAKE.

From North Bay we take the Pacific express, which carries us through one of the most desolate regions that it would be possible to imagine—a region of bare rocks and scanty, monotonous forest. But we are nearing the mines, and the accompaniments of the mining industry multiply. As we near the little station of Wahnapitae, we are informed that a prospector had just boarded the train on his return from a trip. This naturally arouses our curiosity as to what he is like, and what luck he has had, after travelling

Sault Ste. Marie branch, we procure a team and drive out to the Canadian Copper Cliff Mine—a distance of four miles. We follow close alongside of the railway track, to avoid climbing the rough hills which abound on every hand. The mine is owned and operated by the Copper Cliff Mining Co., incorporated under the laws of the State of Ohio, and chiefly composed of members of the Standard Oil Trust—one of the wealthiest corporations in the world. As we approach the works we notice that all the trees and shrubs

are leafless, and that it is almost impossible to find a blade of grass. This is due to the sulphuric fumes which escape from the furnaces and roast beds. These fumes will kill any kind of vegetation within a mile or a mile and a half of the works: one can even now get a good snuff of them, although we are a mile away from the furnaces. As we make the turn between two hills, we get a good view of the works. When we arrive, we find we cannot enter the gates until we have visited the office, which is away off near the shaft. Here the visitor has to give his name, address and occupation, and, if these are satisfactory, he may get a pass to visit certain portions of the works, but will not be allowed to go under ground. The shaft is an inclined one, and is now down to a depth of 800 feet, with a drift at every 100 foot level. In some of these levels they have found immense pockets of ore. In the 700 foot level a chamber has been excavated, measuring 250 feet long by 150 feet wide, and

70 feet high. This shaft has practically demonstrated that deep mining pays in the nickel district, as the richest ore has been taken from the lowest level, assaying as high as 13% of nickel. It is interesting to note in passing that, when the Copper Cliff Co. first started their operations here, it was for copper (hence the name), and it was not until a depth of nearly 200 feet was reached in the shaft that it was discovered that most of the mineral mined and thrown away as useless was in reality the more valuable mineral, as it contained a very large amount of nickel—a

metal of which very little was known by the miners who were operating here then.

The plant of the company comprises two smelting furnaces, each of a capacity of 100 tons daily; also a Bessemering plant of sufficient capacity to treat all the cupola matte produced by the two furnaces. About \$250,000 has been expended in plant, and last year a dividend was declared of 10%, notwithstanding the purchase of several valuable tracts of nickel land. But to return to the operations. Here comes a skipfull of ore from below. It is taken aloft and dumped on the highest floor of the rock house, where



A MINERS' CAMP IN SUMMER.

it is fed into the breaker and broken into pieces of the size of a baseball. Then falling into the sizing screens, all the finer material is separated, and the coarser passes over the sorting tables, where the waste rock is, for the most part, picked out. If water be plentiful, a spray is sometimes used to wet the ore, as by this means it is much more readily discernable from the barren rock. From the sorting tables it falls into bins; then into cars, which carry it to the roast beds, which are formed by piling cordwood to a height of about three feet and in quantity varying according to the quantity of ore to be

roasted. The coarse ore is first piled on the wood to a depth of about five feet, when the finer ore, or fines, as they are called, are placed on the top, thus fulfilling the double purpose of preventing the fire, when started, burning too rapidly, and also the fusing of the finer ore into coarser masses again. When the roast bed is finished, it, as a rule, contains about 1,000 tons. The wood is now set on fire, and ultimately sets fire to the sulphur in the ore. The burning continues for a period of eight to ten weeks. During this process of roasting, great attention is necessary, lest the heat should become too great and the ore become

spout at the bottom of the furnace, discharging itself into what is termed the well. In this the molten metal settles to the bottom, while the useless slag flows from an upper spout into the slag pots, which when full are hauled out and dumped on the slag heaps, making finally, as the visitor is sure to notice, beautifully level yards.

Here at night, this slag as it is poured away from the furnace, illuminating the whole neighborhood, has the appearance of molten lava descending the sides of a volcano. When the well has received sufficient metal, a side spout is tapped and the metal is run into other pots and allowed to cool, when it is sampled, and put in the stock yards ready for shipment, or taken to another building where it is still further reduced. To this last, our passes will not admit us, as the process through which the matte passes here is a secret one. The matte as it comes from the furnace, is called cupola matte, and contains about 20 to 25 per cent.



A MINING SHANTY IN WINTER.

fused; this is obviated by choking—more "fines" being covered over that part of the roast bed that is burning too rapidly. Passing along, we see one of these roast beds, that has burned itself out and become cool, being broken up and loaded into cars, which carry it to the smelters, where it is charged with an addition of about 12% of coke, and put into the furnaces. The Herschoff water jacket is the one generally used, it having proved itself the best adapted to the treatment of these ores.

On the lower floor we see the metal and slag coming in one continuous, sparkling, brilliant stream from the

of nickel and a like amount of copper, the remainder being iron and sulphur, with possibly a small percentage of gold and platinum. The Bessmering process gets rid of nearly all the iron, leaving the matte with about 45 per cent. of nickel and a like amount of copper, and the remainder iron and sulphur. There being no refineries in operation in Canada, it is necessary to send the matte either to the United States or to Europe to be treated for the separation of the various metals, and, strange as it may seem, the copper, our own production, is imported back into Canada and duty paid upon it. Last year we imported of

copper and its alloys nearly \$1,000,000. An effort is now being made to establish a refinery here, so that we shall be able to export the refined metals, and thus increase employment to people in our own country.

The Canada Copper Co are operating two other mines, one of which can be seen from where we are, at a distance of about one and a-half miles, and the other is about four miles north of Sudbury. When operating the three mines and two smelters, they employ about 700 men.

Returning to our hotel at Sudbury, and refreshed by a good and necessary wash and by our

host's generous bill-of-fare and a good cigar in the hammock on the verandah, we meet the prospector whom we saw on landing off the train. He has among his specimens two rich finds got between the main line of railway and the Wahnapitae, and, though found in the green timber, show remarkably well. He had been

away for a month, but saw only one bear. The one, however, was almost too much—for, while he was poking along with gun on his shoulder, and with his axe in his hand, the bear suddenly jumped up from behind a big tree and made for him. His gun was not loaded, so there was nothing to be done but to keep the savage beast off with the axe. Finally a favorable moment allowed the loading of the gun, and the bear was killed with a single shot. The skin, a fine one, brought \$35, a sum which the prospector greatly appreciated; he congratulated himself on his success, for two good finds with a bear skin was

by no means a small return in his estimation for a month's tramp in the woods. There were, however, drawbacks. The black flies had been "awful" in the brules; he had omitted to take oil with him, and had to content himself with pork fat as a preventive of the bites, which, good in its way, was not sufficient to prevent him feeling some days as if he had lost a pint of blood from the bites of the dreadful pests. The mosquitoes were also very bad, and his sufferings from them and the flies, the prospector thought entitled him to a fair amount of success.



A DEVELOPMENT SHAFT IN WINTER.

In the morning, we start for the mines again. At the Blezard mines we are sufficiently fortunate as to gain admittance. We find the engine room lighted with electric light, and in the next compartment the cage is awaiting us to convey us to the depths. Then a rattle, a whiz and an upward rush of air and a sudden stop that brings us almost to our knees, and we are at the bottom of an immense chamber hewn out of the solid rock. Looking around, we are reminded of Alladin's tales of wonderful chambers of pearls. The walls of this great cavern, which is large enough to hold half a dozen three-story buildings, we

find, on examining closely, are of solid nickel ore. Out of this ore the great cavern has been hewn. Sides and roof alike sparkle under the electric lights, with innumerable dazzling points. From the cavern reach galleries and holes in which are many men busy operating with drills, drilling small holes afterwards to be charged with dynamite and exploded. These explosions one does not care to see, terrific and grand as the sight may be. The men are safely cleared out; the charges are fired; then comes a tremendous sound; a smothered thud is heard by those above ground; the earth around the mine trembles as in an earthquake; then from the mouth of the pit belches forth a cloud of smoke. Down below the scene has been terrific: flying masses of ore, large and small, have filled the entire cavern, have bounded and rebounded against walls and roofs and floors, and even should a man station himself around a corner apparently out of reach of any missiles, a bit of rock bounding from point to point may get to him and hit him with occasionally uncomfortable effects, to say the least. After the explosion the cavern fills again with miners; the ore detached by the explosion is loaded into cars, taken aloft to undergo processes similar to those mentioned in connection with the Copper Cliff mine, and the work of drilling holes is resumed in preparation for the next explosion.

A little to the north of the Blezard mine is the Beatrice mine, worked by Montreal and American people, who seem well pleased with the prospects, as they have just put in a complete mining plant, furnished by the Jencke Machine Company of Sherbrooke, Que.

The Murray mine, owned and operated by the H. H. Vivian Company, of Swansea, Wales, is on the main line of the Canadian Pacific Railway, about four miles west of Sudbury. Here the operations are extensive. Two furnaces are erected and a third is being built. The Company use the

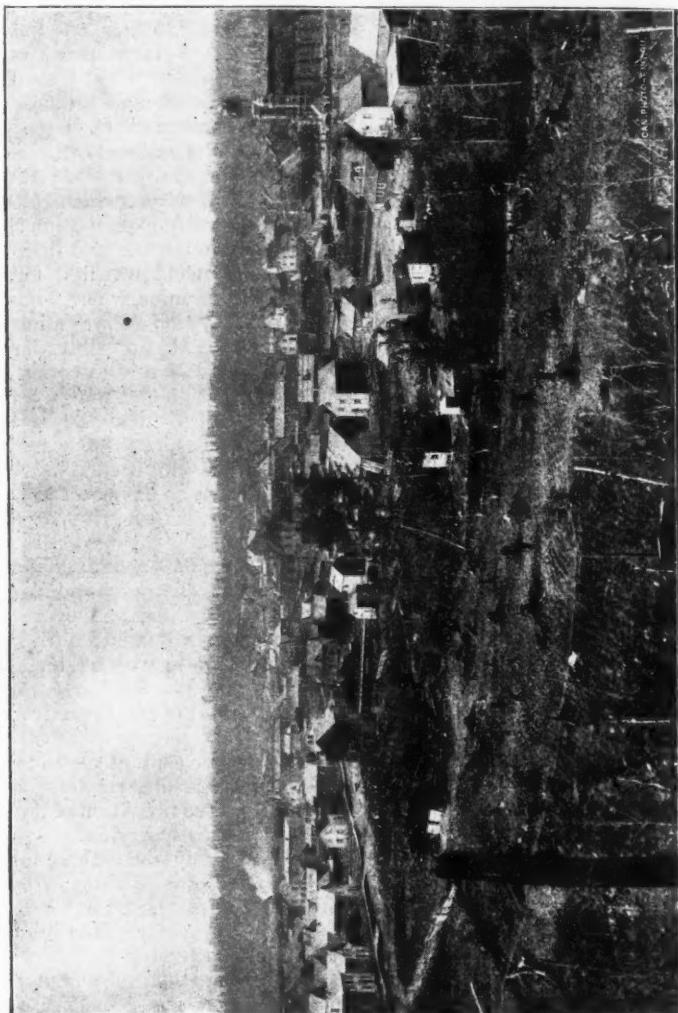
Mawne converter, into which the waste is run from the cupola, and while still hot is put under a blast of a different pressure from that of the cupola. The process has the effect of reducing the waste to smaller bulk, by extracting or blowing off the iron, thus leaving a large percentage of nickel and copper, with a small percentage of iron and sulphur—also some gold, silver and platinum.

Some twenty miles down the Sault Ste. Marie branch of the C.P.R. is the township of Denison, which came into fame and ardent speculation a few years ago through the gold discoveries made there. Gold was first found at the Vermillion mine, where a quantity of remarkably rich ore was mined. It is at this mine that possibly the most curious combination of minerals in the known world is found within a radius of a quarter of a mile. There is not only gold, but nickel of remarkably high grade, some of it assaying 40 per cent. Another shaft shows unbroken walls of solid chalcopyrite, or copper ore, through its entire depth of 60 feet, and ore of exceeding richness. Another shaft shows an abundance of argentiferous galina, and over almost the whole area around these mines is found platinum in varying quantities. I have often got as much as a quarter of a teaspoonful of platinum from one pan of dirt. It occurs as an arsenite, carrying 54 per cent. of platinum; the remainder is arsenic, rhodium, and a little tin. This combination of minerals has been named sperrylite.

South-westerly about three miles is the Gersdorff mine, so named from the mineral found here, and nowhere else in the world thus far. It is an arsenite of nickel, carrying 34 per cent. of nickel. Some remarkably fine specimens of crystals of gersdorffite have been found; most of them are now in the mineralogical collection at Ottawa. Nickelite, a mineral carrying 64 per cent. of nickel, has also been found on this property, and, like gersdorffite, on this property only. Two or three

other grades of nickel are also found, and a half miles to the northward of as well as chalcopyrite and some platinum. A mile and a half further west we reach the Worthington mines, now owned and operated by the Do-

the Worthington are the mines and works of the Drury Nickel Company, now operating successfully on an extensive scale. These mines are on the



THE TOWN OF SUDBURY.

minion Mineral Company. The mine yields a quantity of high-grade ore, some of which, hand-picked, has been sent direct to the refineries, being so rich as not to require smelting. Four

westerly end of a very rich belt of mineral which crosses the township of Denison into the township of Graham.

Westward, through the townships of Drury, Hyman, Nairn, Lorne and Lou-

ise, are found many excellent prospects, that promise a large extension of the worked area of the nickel country. A great want is, however, felt in the lack of a customs smelter, to which, in the early stages of operation, the mines could send their ore to be treated or for sale to the company operating the smelter. The Commercial Mining and Customs Smelter Company are making strenuous efforts to supply the want, and with hope that before long a complete smelting plant may be in operation.

As to the future of the nickel country, there is abundant room for great hope. The history of Sudbury town partakes in large measure of the nature of that of the mining towns of the gold and silver regions beyond the Rockies. It was a small lumbering settlement a few years ago, with but little prospects of importance, as lumber was scanty and transportation difficult. The discovery of copper rescued it from the distress caused by large forest fires. Copper was mined and exported in considerable quantity, but the miners and the world generally remained ignorant that the copper ore contained a mineral of far greater value than copper. The discovery, occurring at a time when the uses of nickel were coming to be appreciated, caused a boom. The town was filled with speculators eager to risk heavily in taking advantage of the early stages of the nickel development, and lots sold one day at \$250, would, on the discovery of nickel, at once advance to \$25,000 or \$100,000. Small fortunes were rapidly made for a time, and often soon lost. Then speculation became quiet and regular, but there is always attending this little town the prospect of a boom that will far surpass previous ones, and which may occur simply through a large demand being made by one of the great naval powers of Europe for nickel for armor.

The uses to which nickel may be

put are now found to be very great and varied. Nickel-steel plated, containing about four per cent. of nickel, is found far superior to any of the steel plates used for clothing ships of war, and the fact is being taken advantage of by the American and other governments, though the general adoption of this plate by the navies of the world yet awaits a series of tests to discover the very best combinations, before ordering the many millions of dollars' worth of nickel that would be necessary for naval purposes. Two pounds of nickel-steel will effect the purposes of four pounds of the old steel. For cannon, there is much to commend it, and, in addition to its lightness and toughness, nickel possesses the invaluable quality of being non-corrodible. With such qualities, it may well be supposed that nickel will come into extensive use for locomotives, bridges, rails, in fact that it will produce a radical change in the character not only of armaments but of machinery. Then there is the prospect that nickel will supplant German silver and Britannia metal in the making of household utensils and fancy articles of various kinds. As soon as these changes take place, the nickel country of Ontario will become the seat of a large population and of an immense industrial development, which will act most favorably on the commercial centres of Canada and on agriculture and, in fact, every industry. At present not much use is being made of the copper associated with the nickel ores, but the progress of applied science is rapidly moving towards the profitable separation and utilizing of both metals. Then here, too, are found enormous beds of iron. The proximity of the two metals is suggestive that Canada may be able to make nickel-plate to supply the navies of the world, instead of shipping nickel matte, as is now done, and giving the greater proportion of the profit arising from its nickel-steel manufacture into the hands of other nations.

## A CEREBRAL DISCOVERY.

TO E. MCG. LAWSON.

I HAD been several times on the point of "throwing up the sponge," and discontinuing my course.

My fees for last year had used up every cent I possessed, and it was only by means of borrowed books and credulous landladies that I was at all able to keep up with the work.

On several occasions I had borrowed small sums from my fellow-students, which I gave to my landlady on the same principle that we, in the country, used to drop a small piece of pork-fat into the huge maple-syrup kettle.

But now my credit was broken, even among my friends. "Very sorry," they would say, "but, really, you know"— And, of course, I knew only too well.

It was the year '89, in which the Medical College saw fit to add a year to the old three-year course, that found me so peculiarly distressed. If I could scrape enough of the all powerful lubricator together to enable me to register in two weeks, I could escape that additional year. But where could I raise the necessary amount? I was in desperation.

In this frame of mind I was wending my way along Parliament-street on a drizzling, raw, disagreeable afternoon about the end of March. I had just reached "The Scarboro'," that famous old rendezvous of the thirsty "Rouge et noir," and 'Varsity meds., when the door opened and I stood face to face with my two *bon homie* friends, Ralph and Jack.

"Why, hello, Impecunious!" they cried in one voice. My chronic condition had given rise to this nickname among the boys.

"Got the blue devils again? Come," said Ralph,

"Wi' Tippenny we'll fear nae evil;  
Wi' Usqueba we'll face the devil."

"Come and have something. Ah, you poor duff! I forgot you never imbibe. By the way, did you know"—

"That my landlady has a warrant out for me? I expected it."

"No," said Ralph; "Doc. T—" has given notice that we may start on that new sub."

"Well," I said, "the sooner we commence, the better."

"That's what I say," said Jack; "and I propose that we get over to the dissecting-room early to-morrow morning, and have a good 'grind' on that brain."

"I second the motion," I said, with an attempt to look cheerful.

"Carried unanimously," cried Ralph, cheerful without any attempt to be so. "Well, boys, 'when shall we three meet again'? Will eight o'clock suit?"

"Suits me all right," I said.

"Agreed, then," said Jack; "eight o'clock to-morrow morning."

And as I preferred being alone just then, I pleaded an appointment, so that we separated, and I continued my aimless walk down the "long, lone, unlovely street."

The sight of my lazy-going friends, with nothing to bother them, made me feel even worse than before. The contrast was too painful. Here were two men lavishing money on all manner of costly nothings. Here I was, unable to furnish myself with the necessary books,—unable even to raise my fees, debating with myself the "to be or not to be" of completing my course. It was bitterly unjust.

In the midst of these gloomy meditations, my thoughts suddenly, and without any apparent cause, became

veered about, and centered on—the new sub.

He was a man, I understood, who had died in the hospital, after manifesting very remarkable cerebral symptoms.

"It will be an interesting brain," I said to myself. And as I walked back to my room I was filled with a great desire to see that brain.

I studied later than usual that night, and yet I think I covered less work than I ever before did in so many hours' sitting. My mind would involuntarily turn to the new sub. What a strange power this inanimate thing had of monopolizing my thoughts!

About one o'clock I undressed, extinguished my light, and got into bed—and slept. But for how long? It may have been five or six hours. It seemed to me to be about half past five when I found myself wide awake, with one thought occupying my mind—the new sub.

I have heard of drink maniacs waking up in the night, overcome by a devouring thirst. But who ever before heard of the thirst for knowledge so overwhelming one's will as to make reason impossible? I found myself wide awake, saying aloud, "*I must see that brain. I must be there before Ralph and Jack!*" With the eagerness of desire I sprang from the bed.

How I managed to dress so quickly is one of the mysteries that surrounded that night's experience. Within three minutes, in bare-headed haste, I was hurrying down the lamp-lit street, instinctively taking the direction of the dissecting-room.

The gray morning was just peeping above the eastern horizon, and the street lamps were beginning to fade. The stillness of everything was made emphatic by the sharp sound of my hurrying footsteps.

As I watched the ever-increasing halo that surrounded a church spire in the eastern distance, I quickened my pace. "What if I should be too late?" I gasped.

At length, excited beyond measure, yet in no wise exhausted, I reached the dissecting-room door. And here, strange to say, I was not surprised to find the door unlatched, as if waiting for me.

Without the slightest hesitation I rushed into the room, closed and bolted the door. Then I took a long breath, and looked about.

In the dim light of that early hour I could see the dark objects lying on the long tables—silent, still in death.

I paused and held my breath, and a feeling of awe came over me, such as, in all my dissecting-room experience, I never felt before. Once I thought I heard a sigh from one of the tables, and started; but when I listened closely, all was still.

Then the great necessity of seeing that brain forced itself on me again. "Quick, or I'll be too late, and Jack and Ralph will be here!"

I drew off my coat in a second and threw it on the floor, regardless of the fragments of adipose tissue and visceral organs that mixed with the sawdust in careless profusion. On any other occasion I should certainly not have done this; but even important things seemed as nought before this burning, yet unaccountable desire.

I pushed up the eastern window and drew the table near to it, and the gradually-brightening light showed me the features of what I knew at once to be the new sub.

An indescribable joy made me tremble with excitement as I recognized by instinct this face that I had never seen before. What meant that secret sympathy that drew me to this corpse?

With lightning fingers I adjusted the cranium-holders; then I made a careful incision across the forehead with my dissecting-knife, took up my saw, which lay on the window-sill, and placing the blade between the lips of the incision, began carefully to saw the skull.

I have always been credited among

the boys with being very quick and neat in "taking off the top of the egg," or, more technically, in removing the cap of the cranium. In a few moments I had penetrated the bone.

I put down my saw, and inserting the point of my chisel, I forced the bones wide enough apart to permit the entrance of my finger, and with my finger I sought to press back the membrane that clung to the sides of the bone-cavities, so as to effect more easily the separation of the upper skull from the brain. In doing this, my finger happened to come in contact rather suddenly with the brain proper. I gave a start, for, to my utter astonishment, where I had expected to find nothing but a smooth, soft substance, my finger touched something decidedly hard.

"A discovery!" I cried, and big drops of cold perspiration formed on my brow.

I have heard of how great inventors have felt when on the verge of a great discovery. I felt it all in that one supreme moment.

I removed my finger, and still holding the fissure open, I again inserted my chisel, and this time gave a gentle tap. *Click!* There could be no mistaking that sound. Truly I was about to make a great discovery. *CLICK!* Again I tapped, and again the distinct metallic *click* assured me I was right.

Eagerly impatient to get at the root of the matter, I applied my two hands and wrenched the cap away. I had made a discovery indeed.

Gold! Gold! Gold! I gazed, open-mouthed, stupefied with astonishment. The membrane of the cerebrum broke and vomited forth a heap of twenty-dollar gold pieces. The cerebellum poured out a stream of gold coin. And right down to the *foramen magnum*, gold, gold, gold!

This, then, explained the power of attraction over me that this body possessed. Without doubt, there is no load-stone so powerful as the yellow gold!

I could hardly realize my good fortune. Here were my troubles ended. I could pay my fees, I could pay my debts, I could finish my course in comfort.

I can recall no hour in my life that has given me so much unadulterated joy as that one brief moment.

I heard a step outside.

With the eager greediness that the sight of bright gold invariably induces, I hastened to conceal the precious metal; I picked up my coat and filled all its pockets.

Again I heard the step outside. "Bang, bang!"

The tables shook with the force of the blows delivered on the door. I seized the last remaining coins in my hand and put them out of sight.

"Bang, Bang! "Impecunious, Impecunious! Open the door!" The door flew open, and I was seized by the shoulder and shaken.

"Impecunious," cried Ralph, "what are you doing here at this hour of the day when you have made an appointment for eight o'clock? Get up, you lazy devil."

I looked up in a dazed manner. There were Ralph and Jack leaning over the bed.

"I must have been dreaming," I said.

"Dreaming! you good-for-nothing Rip Van Winkle," said Jack; "I should say you have. There's that new sub. lying over there just tingling to have you saw off his top-knot, and here you are lying calmly in bed at nine o'clock."

"Perhaps," said Ralph, holding up a letter, "he will get up when I tell him that there is an epistle from his fair Dulcinea awaiting him. I must say she writes a very masculine hand. Woman's rights woman, doubtless."

"A letter for me?" I said; "if it is not in a lady's handwriting, you may open it, Ralph, and read it to me. My eyes are not yet used to the light."

Ralph tore open the envelope and read. Before he had finished, I was

sitting up in the bed with eyes protruding with astonishment. It was a brief note from Scribbler & Scratch, lawyers, London, informing me that my aunt had just died, leaving me some ten thousand dollars in first-class stock, and somewhat more than that amount in real estate.

For some time none of us could give expression in speech. A few minutes ago I was "Impecunious,"—now I was a man of means.

"Congratulations, old man," said Ralph and Jack at last. And then we began to discuss this unexpected turn of Fortune's wheel.

"Say, you fellows," I said, as I pulled my nightgown over my head, "do you believe in dreams?"

"Nonsense!" they exclaimed in one breath.

"Well, I do," I said. And as I dressed I told them why.

## TO CANADIAN POETS.

Far sweeter sounds the note of Spring's first bird  
That has the heart to brave the colder skies,  
And sing with warmth of its forsaken South,  
Ere all the land is full of songful cries,  
And summer's ardor aids delirious song ;  
So, dearer sounds the song of him who sings  
With hope of happier days, whose soul is strong  
In promise of a plenteous summer's glow.  
More welcome are his words than those of him  
Who softer sings beneath a sunnier sky,  
And nobler is his task, because he brings  
The light to lands that hereto lightless lie.

—ARTHUR J. STRINGER.

## THE GHAMOIS HUNTER.\*

BY FLORENCE ASHTON FLETCHER.

### CHAPTER I.—*Introduction.*

To those of my readers who have not yet visited the "Fatherland" of my little story, with its silent, majestic mountains, its rushing, foaming torrents, and its mirror lakes—a land of wild and romantic scenery,—and who are not acquainted with the heroic traditions of chamois-hunting, still preserved in certain cantons in Switzerland, it is necessary to explain that the sketch of this tale was written at a time when chamois-hunting was ceasing to be the only life for a man of courage and character to follow.

The ardour that characterizes the chamois-hunter may be compared to that of the Koenper of the North, who, pushing their drakers over the stormy seas, were not at all sure of booty, but very sure to perish some day, either by shipwreck or sword. So, chamois-hunting was less a resource than a noble exercise of skill, strength and courage,—a perpetual challenging of death.

The Alpine hunter followed a dream which, through cold, fatigue and suffering, must inevitably lead him to the bottom of an abyss. But what matter? An invisible power pushed him forward. He who would be a man must be a hunter.

Blaesi of Schawanden, one of these heroes of the mountain, drawn too far by pursuit, was once ten hours hanging to a point of a rock. His hair whitened from terror: he was at last rescued by a companion to whom he gave up his rifle, swearing never to touch it again; but scarcely were the words uttered when the head of a chamois showed itself from behind a bush of Alpine roses. Blaesi thrust

out his hand for his weapon, crying, "I am still a hunter," and set off in pursuit of his new prey. He is said to have killed 675 chamois. Nor is this an exceptional fact: Colani of Engadine, hunted up to his seventieth year, and killed 2,700.

The mountaineer, de Sext, left his beautiful bride, whom he adored, a few days after their marriage to hunt on the mountain. "I know the fate that awaits me," said he to the great naturalist of Geneva. "All the men of my family have died in doing what I do, so I call this bag that I carry my winding sheet; but for all the gold of Geneva I could not do otherwise." Such precisely were the Hausers of the Enge. The mountain had ever been their country; before everything else they had preferred the savage liberty of the heights, and the strange glory of that war carried on with its difficulties and scourges. Several generations of celebrated hunters had succeeded each other in this family, and had bequeathed to it a sort of distinction and nobleness; and it is the history of the last of these hunters, as it has been preserved in the memory of the people, that I here give you, certain that in its very strangeness it faithfully represents an aspect of Alpine life but little known.

At the bottom of the narrow defile of the Enge, not far from the village of Grindelwald, and a few steps from the mountain torrent known as the Black or Schwarze Lütschine, from its slate-colored waters that come plunging, splashing and roaring down the ravine, stands a hut, now uninhabited, but well known as having been for a long time the home of one of those

\* This story is founded on a French story by Emile Souvestre.

rare families of chamois-hunters. On the hill-side above, the ragged pines still sing of the glories of those days, as they rock in the mountain wind. The old walls and low roof are fast crumbling into decay, and little tufts of moss and fern sprout from every chink. No glass, or sign of glass, remains in the windows, and the old door was long ago swung off its rusty hinges by inquisitive travellers who came to explore, to stare at the old, smoky fire-place and wonder "who had lived here," and if those walls were suddenly gifted with a tongue, whether the story they could tell would be an interesting one.

## CHAPTER II.

A few years ago this hut was still inhabited. Our story begins early in March, and from the 28th of October the sun had not once shone in the valley, and only a sombre light penetrated to the bottom of the gorge. The mountains in front of it, from Iselten Alp to the Wetter Horn, were clothed in glittering snow, dotted here and there with fir trees. Within, the little hut was lighted by the fitful flame of the wood fire on the hearth. Near the window, the little panes of which were now dimmed with ice, stood a young girl, clad in the usual dress of a Swiss peasant girl, resting against the wall. Her hands were joined, her head bent, and her whole attitude expressed a meditative sadness. At her feet sat a youth, his forehead rested on his folded arms. Their dialogue evidently stopped at one of those pauses of discouragement during which each speaker continues the conversation with himself. For a long time nothing was heard but the heavy roaring of the Black Lütschine, which was constantly throwing against its shores blocks torn from the mountain, and the cracklings of the burning wood sending out bright sparks of fire.

"So it is really true, Freneli," said he in a depressed tone; "while I have

been away working courageously, with the hope that one day you may be mine, Aunt Trina has destined you for Hans?"

"It is too true, Urich," sadly replied the young girl.

"But, if I understand you, she has not yet said anything either to you or to him?"

"Nothing."

"Then you are not promised to Hans?"

"Not in words, certainly, but in intention, and Hans has understood without her having opened her mouth; they have explained it to each other in spirit."

"It remains to be seen whether, by confessing to your grandmother that your heart turns elsewhere, she may not change her plans."

Freneli shook her head.

"Grandmother is as firm in her resolve as the Eiger is on its foundation," said she, "and it would be just as easy to upset the mountain as to turn her from her will."

"Even if Hans does not share it?" asked Ulrich, with his eyes fixed on the young girl. "Tell me, Freneli; answer me as if your hand were on the Bible; has Hans ever spoken to you of love?"

"Never; you know the words of Hans are as rare as gold."

"Yes, he is a true chamois-hunter. Hans has married the mountain; perhaps he will not wish any other wife: What if I told him all?"

Freneli shuddered.

"For your life do not do it," she said, hastily. "If he suspected anything, God only knows what would happen—I should be less afraid to see the Lütschine out of its bed again, carrying off the woods and flooding the meadows, as it did last year."

"Then you are sure that he loves you, Freneli?"

"Just as much," said she, bitterly, "as he loves the chamois that he hunts on the points. Do you think he would talk to it, or trouble himself about its

consent ? I am in his eyes just like all the rest—mere prey; he thinks I belong to him only because he wants me, and he would serve anyone who tried to take me from him as the hunter serves the man who robs him of his game."

"So everyone here is against me?" cried Ulrich, mournfully.

For a moment Freneli did not answer; then, after a short silence, in a lower voice she said :

"There is some one who is your friend; it is Uncle Job. Although he too loves only the mountain, and he was very sorry to see you give up the rifle, yet he always speaks tenderly of you."

"But Uncle Job can do nothing with the *will* of Aunt Trina: besides, he is not here."

"No, he is high up in the mountain nooks, looking for plants, stones and crystals; but I hope he will come back this evening."

"Ah, well ! I am not going back to Merengen till to-morrow," replied Ulrich pensively. "I shall see if any thing may be hoped for from Uncle Job. But you," added he, "do you then love me so little that you could live contentedly with my cousin ?"

"You know too well the contrary," answered Freneli in a moved tone.

Then *you* will help me, Freneli ?"

"As much as a poor girl can, Ulrich."

"But if Aunt Trina and Hans persist ?"

"Then we shall be very unhappy," replied she, weeping.

The young man put his hand to his forehead with an expression of despair; neither he nor Freneli thought for an instant of the possibility of disobedience. In the simple life of these Alpine valleys, fireside tradition, kept up by the influence of the Bible, has entirely maintained the submission of children: reasoning has not yet come there to help passion by disputing the power of the head of the family: to *him* alone belongs the right to *will*, and like Abraham, he could,

if he so willed, lead his son to immolation, making him carry the wood for the sacrifice.

Freneli's grandmother alone remained to represent this uncontrolled power, and she had known well how to preserve all the privileges of her position. Brought up at her hearth, her two grandnephews, Hans and Ulrich had learnt never to dispute her will until the age when, having become chamois-hunters, they had won the freedom of the mountain. But Ulrich, had in him neither that instinct for struggle, nor the feverish emotion that impasses men for so wild an existence; his aspirations were elsewhere. Every time he passed through the valleys of Lauterbrunnen or Hasli he involuntarily wasted hours at a time at the doorsteps, where the shepherds were carving yew and maple. He admired the *chefs-d'ouvre*s of skill, which wanted only a more inventive imagination : he dreamed of new forms, and at the times for lying in ambush, forgetting the prey he was waiting for, he would let his gun fall to the ground while he cut lace-like tracery upon some wooden tile pulled from the roof of a hut. His numerous and even more successful specimens were soon known, and in proportion as his reputation as a chamois-hunter waned that of a maple-carver increased. At length a tradesman at Merengen offered to take him into his workship. Besides the means to follow his tastes and perfect himself in the art he loved, Ulrich would find there advantages sufficient to secure for Freneli comforts which hunting would always have denied her.

This last motive was enough of itself. He hung up his rifle at the foot of Uncle Job's bed, and set off to Merengen. Two years passed—two years of hard work, during which Ulrich won the first place among the wood-carvers of the Oberland, and saved the sum necessary for the realization of his dearest wish. We have seen how the grandmother's projects

had been revealed to him at the moment when he hoped he had reached his aim.

## CHAPTER III.

The young carver had again begun questioning Freneli as to the signs which had been able to betray to her Katrina's plans, when the door softly opened from without and a woman entered. She was about seventy, small, thin, and although bent by the weight of years, to see her slow but firm step one might have said old age had clothed itself in steel armour. The decrepitude of her face made her sharp, grey eyes the more remarkable, the penetrating fixedness of which reminded one of a bird of prey. Her shoulders were laden with one of those wicker baskets which seem inseparable from the inhabitant of the mountain, and which he carries from habit, as a soldier does his sword.

Scarcely had she crossed the threshold before her searching look had discovered Freneli and Ulrich in the darkness, who, interrupted in the midst of their confidences, were visibly embarrassed.

"Ah! ah!" said she, slowly freeing one of her arms from the wicker band around the basket, "here is company; you here, *you?*"

"God be with you, grandaunt," replied the young man, advancing towards the old woman, "I am come from Merengen—I was just asking for news of you."

"And you were asking it in whispers of Neli; very good; but I like to see the faces of my visitors. Neli, get a light."

While the girl obeyed, Trina took off her basket and put it into a corner, then going into the lighted part of the room she cast a quick glance at Ulrich and her granddaughter.

"Hans is not back yet?" asked she.

"Not yet, grandmother," replied Freneli.

The old woman turned to her nephew, "He never rests," said she, with

meaning, "the bread that is eaten here must be got by him up there beyond the glaciers; you did well to choose an easier trade; the chamois run too fast for feet that like to stretch themselves on the hearthstone."

"I have cause every day to rejoice in my determination," replied he, without guessing the irony underneath the serious tone of the old woman.

"Ulrich has brought us a specimen of his work," interposed Freneli; "see, grandmother, how clever he is got."

She brought to the light one of those cups in the shape of a tulip, since then imitated by all wood-carvers, but of which Ulrich had the first idea.

Trina only deigned the merest glance at the work.

"And are there people who buy that cut wood?" asked she with a sort of disdain.

"Yes, and pay well for it, too," proudly returned he. "I assure you my chisel and knife bring me more money down there in a week than Hans' rifle brings here in a whole month. Does Aunt Trina think silver a good thing?"

"Of course," replied the old woman, "it is the best—after gold."

"Without reckoning," added Ulrich, continuing his thought, "that I have not, as on the mountain, death always elbowing me; the wife who will wait by the fireside for me will not have to tremble every time the noise of an avalanche comes from the Shreck Hörner or from the Wetter Horn."

Trina's glance made him cast down his eyes.

"Ah! that is what you were making Neli understand," said she.

Freneli tried by a gesture to stop the reply of Ulrich, but he, with a kind of desperate eagerness, seized this opportunity of thoroughly knowing his fate.

"It is true that I have spoken to her," said he, with emotion, "and since you have guessed it there is no reason why I should be silent before you. I

have always wished this, and for the last two years we have both wished it."

Trina turned to Freneli, who bent down her head, blushing.

" You have known me from my cradle," continued Ulrich, " I have been brought up here as your son, and you know I am neither cowardly nor malicious, and that the wife that is given to me will not have a man without a heart. May God punish me if she ever has to weep through my fault. Let Freneli and me be happy then, Aunt Trina, and we will thank you on our knees, like the papists thank their saints. See, Freneli prays you with me; do not take from us the strength and happiness of life."

He had taken the young girl's hand, and stood with her before the grandmother. Trina kept them for a minute under her glance, much as a hawk might a couple of wood-pigeons: then shaking her head,

" Do you know Freneli's dower?" asked she of Ulrich.

" Her dower," repeated he, not appearing to comprehend; " I never thought she would have any, Aunt Trina; but what does a dower matter to me?"

" It matters to me," replied the old woman, " for this dower is not a gift which enriches, but one which obliges. It is there in that press, that you have neither of you seen open, and of which in your childhood you were afraid."

The old grandmother crossed the floor to where the worm-eaten piece of furniture stood. Fumbling along the crossbeams of the wall behind it, she presently produced a rusty key, and with difficulty proceeded to unlock it. As the two doors opened, within the dark depths of the press might be distinguished several chamois skulls, surmounted by long bent horns. These whitened bones separated themselves in the shadows into such strange skeletons that Freneli could not help uttering a slight cry. Trina turned to her.

" Have you then so little courage as to be frightened at this sight, foolish creature?" said she, roughly.

" She may at least be surprised," interrupted Ulrich, " what is the meaning of all this, and whence came such a dower to Freneli?"

" From her father's fathers," replied the old woman, " and although you are not a great hunter, Ulrich, you can see that each of these skulls is that of an emperor of chamois."

" Truly," replied Ulrich, who knew that, according to tradition, those high and bent horns belong to chamois old enough to have a sufficiently numerous posterity to form a tribe of which they are the chiefs.

" Nor are you ignorant of the difficulty of reaching such game," continued Trina, " and you have heard, I suppose, that he who does attain it has only the Archangel Michael or the Black Hunter beyond him in skill?"

" I have been told so," answered he.

" Very well!" replied the grandmother, with emphasis, " for as long a time as it would take for an acorn to become an oak, all those who have married daughters of our house have each brought to their affianced bride an emperor of chamois as a wedding present. Look! under each of these horns you may read the name of one of our ancestors. The last, standing a little above the others, was hung there by my son-in-law—whom may God reward! When he came to ask for his cousin, Freneli's mother, I showed him what I am now showing you."

" And what did he say?"

" Nothing; but two months after he threw at my feet what you see; if he had not brought it, my daughter and I should have waited for a more skilful hunter."

Freneli and Ulrich exchanged a despairing glance.

" What!" cried Ulrich, " you would have put such glory above everything else, Aunt Trina; you would have granted nothing to the love your daughter had for Freneli's father?"

A contemptuous smile grimaced the wrinkled face of the old woman, and was her only answer.

" You care little then for the wishes of her who marries," said Ulrich, sadly : " what you think necessary is *not* her happiness ; it is only that there may be in your family the best hunter of the mountains "

" And we have always had him," proudly replied Trina.

" But what has he brought you," continued Ulrich, getting more animated, " except poverty, anguish and widowhood ? Where are now the remains of those who placed there these spoils of which you are so proud ? Have they not all had avalanches for their winding-sheet, and the bottom of a precipice for their burying-ground ? "

" Who told you the contrary ? " returned Trina, with lofty coldness. " Did I ever tell you of long life, rest or riches ? In the histories of noble families, do we not read that all the men die in war ? Very well, our husbands die on the mountains ; that is their field of battle, and shame will be to the first who dies in his bed."

Fieneli clasped her hands with an exclamation, which seemed to protest, but the old woman interrupted her in a tone of imperious impatience.

" Silence ! silence ! foolish child ; you are not asked what you think. Happily it is not *you* who have the command ; enough for you to listen and hold your tongue. I am speaking to one who wishes to know how husbands may enter here—he knows it now—he has seen what each one must add to our treasures of honor."

" So no one will be accepted who has not fulfilled this condition ? " observed Ulrich, " and Cousin Hans himself —— "

" Hans does not ask anything," hastily interrupted she. " Hans is at his duty—a good opportunity will come for him some day, and his ball will go in the right direction ; meantime he is occupied in feeding us."

" And you may add that he has that

preference against all justice," said Ulrich, energetically, " for I also have a right to give —— "

" Nothing," finished the old woman. " The Hausers have always lived from the mountains ; nephew Hans and uncle Job gather for us up there, and their harvest is enough."

#### CHAPTER IV.

As she spoke these words, the clinking of rolling stones under a hasty step was heard in the path leading to the cottage. Fieneli raised her head to listen and said :

" It is he."

Nearly at the same moment, the door was roughly pushed open, and Hans entered.

He wore the complete dress of a chamois hunter, vest and trousers of cloth, scarred and jagged from climbing, thick shoes, covered with leather gaiters, fringed with bits of ice, and a felt hat, soddened by the rain. At his side hung the hatchet used for cutting paths on the snowy points, his ramrod, and a cartridge case containing his ammunition : a large bag of red stuff, rolled in a belt, was slung over his left shoulder.

He had come in like a tempest, and, stopping in the middle of the hut, let the butt end of his gun fall loudly to the earth. Aunt Trina saw at a glance that his chase had been unsuccessful.

Without saying a word, she signed to Fieneli to stir the fire, while she went herself to a little sideboard, whence she took all that was wanted to spread the table for the evening meal. It was only then that the hunter noticed Ulrich, who, rising, went towards him.

" God be with you, Hans," said he.

Hans made no reply, but sent a quick glance towards Fieneli, whose eyes at that moment were fastened on the young carver.

He passed to the fire without speaking, and sitting down on the block

which stood in the chimney corner, stretched to the brightening flame his feet, which were covered with frozen snow.

Although formerly used to his sullen moroseness, Ulrich seemed now a little surprised at it; he stood on the other side of the hearth, crossed his arms, and leant his shoulders against the wall.

"One may suppose that chamois do not abound in the lower Alps," said he, with a slight dash of irony, "since Cousin Hans comes back as he set out."

The hunter shrugged his shoulders and disdainfully replied:

"Who ever said that chamois did abound in the lower Alps when the thaw has uncovered plenty of food for them in the highest crags."

"Then it is because my cousin does not care to seek them so high," replied Ulrich.

Hans looked furious; an evil light flashed from his handsome, black eyes, and an angry flush mounted his olive cheeks.

"I came from the Shreck Hörner," said he, with peculiar emphasis.

At this name, the two women turned to each other, and Ulrich himself could not repress a start.

The Shreck Hörner (or Points of Terror) are in reality the highest needles rising from the Mettenberg, and their name sufficiently shows how formidable a thing their approach has always appeared; hunters themselves rarely risk going there, and those few who do pursue chamois even to these extreme retreats, are thought very much of, if they ever return.

Trina, having finished laying the table, turned to the fire.

"The Shreck Hörner?" repeated she, in an altered tone, "are you really come from the Shreck Hörner?"

"Why not?" asked Hans, looking at her.

"It is there they have all been lost," muttered the old woman to herself—"the father of Freneli, the father

of her mother, and the father of her grandfather; there is an old hatred between our family and the Shreck Hörner."

"And even on these heights you have found nothing," continued Ulrich, interested, in spite of himself, in his cousin's daring.

"Who told you so?"

"Have you seen traces then?"

"I have seen more."

"What then?"

"A flock of chamois with their emperor."

All three uttered an exclamation; then there was a moment's pause, during which the little Swiss clock in the corner ticked with all its might and main, but no one heard it.

In these wild valleys, chamois hunting is the romantic side of life; all kinds of miraculous adventures are associated with it—just as smuggling used to be on our coasts, or piratical expeditions west of the United States, or gold-digging on the banks of the Sacramento—the never-ending inspirer of fireside tales; it is thence the popular muse draws for his "Thousand and one Nights," so that it has an irresistible hold over every imagination.

At the mention of this rencontre of the hunter, Trina and Ulrich drew nearer, questioning him all at once.

Hans drew himself up; a beam of exultation lighted up his weather-beaten features.

"Yes, I have seen them;" and he extended his hand as if he would have pointed out his marvellous prey. "They were in one of those openings at the foot of the lesser point. I examined them well with my glass, looked at my priming to be sure of both barrels, and then crept forward. When I was within shot of the chamois placed as sentinel, for I could distinguish his horns, he bounded aside to warn the others, and they all set off with the emperor at their head: there were nine of them."

Aunt Trina shuddered.

"Are you sure of the number?" said she quickly. "Did you count them?"

"As certainly as I might count my fingers."

"They were led by an emperor—you are not mistaken?"

"Did I never hunt till to-day?"

The old woman made no reply. Her eyes were fixed upon the bright, dancing flames before her, but her thoughts were far away.

"I followed them for three hours among the points and along the Echelottes," continued Hans, getting more and more excited. "First they went to the Viescher Horn across the glacier; then they retraced their steps. Four times I took a short cut and got near enough to them to hear the commanding whistle of the emperor, who still took the lead, but there was always a crevice or a peak to cut off my passage."

"And where did you lose them?" enquired Trina.

"On reaching the Eiger. In the time I took to get round a rock they all disappeared."

"It is so—yes, it is so," said the grandmother, pensively. "Nine chamois, an emperor at the head—impossible to reach; and when at last he does get near they all vanish. Freneli's father saw them a month before his death."

Hans shivered in spite of himself, but after a moment's silence, said, with a careless shrug of the shoulders:

"Do you think, then, this was a troop of phantom chamois?" (chamois d'égarement or imaginary chamois that are pursued in vain and lead to precipices.)

"Who knows?" said Trina, looking fixedly before her. "The evil spirit is in his own domain up there."

"Did I say otherwise?" demanded Hans. "Anybody who has passed a night near the Jung Frau must have heard him more than once roaring under the glaciers; but what of that? I have faced him in his dwelling for

eleven years, and as long as I have my hatchet and my gun I shall not want anyone's help against him."

Freneli looked at Hans in amazement. Brought up as she had been in the belief of the valleys, she looked upon those regions of eternal snow as a land of formidable horrors, into which man could only risk going with timid precaution and under the protection of God. Thus the audacity of Hans seemed profanity to her, and this feeling was without doubt shared by Ulrich and the old woman.

Trina shook her head and said, half aloud:

"One must not irritate the invisible enemy, Hans."

Hans, carried away by a spirit of bravado, sprang to his feet, and, striking his fist on the table, cried impetuously:

"By my soul, Aunt Trina, I care as much for him of whom you speak as for the mountain rat that squeals in the rocks of the Scheideck. Listen to what I promise you, and you others listen, too. Before ten days have passed, there shall be on this table a quarter of that emperor that I have just been pursuing."

Hans glanced at Freneli with a look that made Ulrich tremble. The promises of Hans were never lightly made, and this seemed a sort of engagement with himself which he would accomplish at whatever price. This rash vow was followed by a long silence.

## CHAPTER V.

Meantime he had drawn a chair to the table and had seated himself before the scanty meal made ready by the grandmother. It consisted only of the remains of a black loaf and a piece of dry cheese.

"I expect my cousin is not hungry enough for a hunter's meal. I would not dare ask him to take part in such poor fare," said Hans ironically.

"Who talks of poor fare?" interrupted a voice at the threshold.

And Uncle Job appeared at the cottage doorway, armed with his iron-bound staff, his hammer at his belt and a tin box hanging from his shoulder.

Freneli and Ulrich ran to meet him, the one to press his hand, the other to take his load from him, but the old man would only give up a little basket which he carried on his arm.

"Take care, Neli, take care my child," said he, gaily. "These are neither herbs nor stones, nor even butterflies. It is my answer to my nephew Hans. Was he not talking as I came in of poor fare? Lift up the lid, Neli, and show him what I have brought."

Neli opened the basket and took out, one after another, eggs, smoked bacon, three white loaves and a small bottle of kirschwasser.

The hunter, who had watched the other things disappear with great indifference, hailed this last arrival with an exclamation of pleasure.

"Ah, ah! this sends away the frown, my master!" said the old man, striking his nephew's shoulder. "I am very glad to find some opening into this heart, and to be able to send in one ray of sunlight. Good day, Trina, you have only aged two days since the day before yesterday, as far as I can see; and you, Neli,—quick; cook this food for us. Sit down, Ulrich: we will all have supper together, my son."

While thus in a jovial voice, giving each one a word in turn, the old man had taken off the things he carried, and had come to the table and seated himself opposite to his nephews.

He carefully uncorked the bottle of kirschwasser and poured for each one the third of a glass; then helped himself. He inquired, with affectionate good-humor, if Hans had taken anything; to which the hunter contented himself by replying with a shake of the head; then he questioned Ulrich as to his affairs at Merengen.

The young carver repeated to him

what he had told Aunt Trina, but in a low-spirited and absent tone, little in accordance with the words which told of his success.

Uncle Job concluded that the advantages of his new position were dearly bought, and remembering the many efforts he had made to turn the young man from it, he could not help contrasting with it the independence and content he might have enjoyed on the mountain.

For more than forty years Uncle Job had lived exposed to all the fatigues and perils of these solitary wilds, but to him they had ever appeared endearing and sublime. While the unconquerable audacity of Hans presumed to find a demon there, his mildness and resignation sought only his God. The former, drawn on by a kind of furious passion, crossed precipices and avalanches, his eye solely fixed on his prey; the second, patiently meeting every obstacle, contemplated the flower, the butterfly or the stones of the ravine. That was the strength which braves; this the simplicity which admires. So nothing had troubled the serenity of this soul. Youth, in leaving him, had still spared him many rays of its joy, just as the setting sun leaves behind him, on the white points, reflections of his flame.

When supper was served, Job made Trina and Freneli take their places with the rest, and his liveliness brightened all faces. Hans alone remained in his usual sombre mood. When the two women had left the table, the old man made a last attempt to enliven him. He filled his glass and kindly resting his hand on his arm,—

"Drink hunter:" said he laughing; "for this once kirschwasser may flow like water from the rock; the source is found, and to-morrow shall find the bottle full again."

"But where did you discover this wonderful fountain, Uncle Job?" asked Ulrich.

"At the Inn of Lauterbrunnen," replied the old man. "This morning

the butler bought all the specimens I had found near the Rosenlawi and gave me seventeen batz for them; thanks to which I have been able to give you this feast,—and there is some left,” added he, striking his pocket and making a metallic clinking noise. And as Ulrich expressed his joy, “ Bah! this is nothing, child,” said Uncle Job, lowering his voice: “ if you only knew what I saw yesterday on the top of a rock bared by the melting snow:—a nest of true rock crystal! I suspected it at once from seeing how the shelby surface rose. I hit it with a stone and it rang like a bell touched by its clapper.”

“ And you were able to secure this treasure ? ”

“ Not yet; do you think it is to be got so easily? No, no; the nest is hidden in the side of the rock just over the abyss, but with a rope man can go wherever bird can. To-morrow I shall return there. By the way, Hans, in crossing the Wengern Alp, I saw some chamois tracks, above Upigel: I could show you the spot.”

“ Thank you; but I know of others,” replied Hans.

“ These were many,” observed Uncle Job, “ and you know the Wengern Alp is an easy ground for hunting.”

“ I do not seek easy grounds,” objected Hans dryly; then with a sneer at his cousin, he added, “ I suppose formerly such a case w ould have tempted Ulrich.”

“ You suppose right, Hans, for it tempts me even now,” replied the carver; “ you will give me all the information, Uncle Job, and to-morrow I will set out in search for them.”

“ You ? ” cried Hans standing up, “ By my soul! Are you speaking seriously ? ”

“ Sufficiently so as to ask Uncle Job

to give me back my hunting suit that I left at his house.”

“ Is it true ? ” cried the old man, “ you will give up your wood-carving to come back to the mountain ? ”

“ I will try.”

“ Then you are not going to Merengen again to-night ? ”

“ To-night, if you will let me, I will sleep under your roof.”

“ And to-morrow ? ”

“ To-morrow you will return me my rifle, and point out to me where you saw the tracks on the Wengern-Alp.”

The old man rose quickly from the table.

“ Be it so,” said he: “ God be praised ; the child comes back to us. Did you hear what he means to do, Aunt Trina ? ”

“ A puff of wind blows words away,” replied the old grandmother, coldly; “ let us see actions.”

“ We shall see them,” cried the crystal-seeker; “ by my soul, he must recover a taste for a free life. This night I shall pray our Heavenly Father to bring to his gun the finest emperor of chamois.”

“ Yes,” exclaimed Ulrich, seizing the old man’s hand. “ Ah! pray for that Uncle Job; for such a happiness I would give the best part of my life.”

Ulrich cast a glance at Freneli, which was not lost upon Hans, whose brow lowered and his lips became compressed; but he remained silent.

Ulrich took leave and went away with Uncle Job. Then fixing upon Freneli a look so searching as to make her blush and cast down her eyes, Hans nodded his head, as a man would whose doubts are all cleared away, took up his gun, and silently left the hut.

(Concluded next month.)

## SCIENTIFIC NOTES.

(ASTRONOMICAL).

Those who imagine that expensive telescopes are necessary to the satisfactory study of astronomy, may be interested in the announcement that Mr. E. F. Sawyer, the variable star observer, has completed a list of 3415 Southern stars, whose brightness down to the 7th magnitude was estimated solely by the use of an opera glass, and of a field-glass for the fainter stars. The catalogue has been published by the American Academy of Arts and Sciences. Mr. Sawyer made 13,654 observations.

Scientists, generally, will wait with great interest the receipt of details respecting the observations made of the total eclipse of the sun on the 16th of April. The observations by the British, American and French parties sent to Africa and to South America appear to have been entirely successful. This is gratifying, as it was the last total eclipse this century that could be satisfactorily observed.

On the 4th of August last the earth and Mars were on the same side of the sun and

about 30 millions of miles apart. On the 15th of this month they will be 231 millions of miles apart.

On the 14th of June, at 7.30 p.m., Mercury, Venus and the new moon will apparently be close together and form a very pretty group of objects in the west.

Saturn is now the most interesting object in the night sky and will continue to be so for some time. The system of rings, already very beautiful, will be better and better observed as the summer passes, as they will gradually widen out to an observer on the earth.

Proctor's monumental work, "Old and New Astronomy" (Longmans, Green & Co., London) is a magnificent contribution to the service of astronomy. The volume contains upwards of 800 pages, quarto, and is profusely illustrated and written in a popular style. It is certainly most creditable to its famous projector, the late R. A. Proctor, and to Mr. A. Cowper Ranyard, the able astronomer, who completed it.

## BOOK NOTICES.

*Potiphar's Wife, and Other Poems.*—By SIR EDWIN ARNOLD. Octavo demy, 128 pp. New York, Chas. Scribner's Sons ; Toronto, Rowell & Hutchison.

This collection of poems, chiefly relating to Japan and Egypt, and the human heart as its fundamental characteristics manifest themselves in all ages and under various forms of civilization, is, to say the least, interesting. Sir Edwin Arnold's name in itself carries weight in making these poems receive public attention ; his grace and brilliancy as a writer ensures them a wide range of readers. It would, however, be rash to say that the collection deserves more than a temporary reputation. The poems are very unequal in quality ; some of them would scarcely gain admission on their intrinsic merit to a well conducted magazine, perhaps not to a first class newspaper. But several are worthy of the author. "The Grateful Foxes," a tale of Japan, will pass and pass away also. "The No Dance" has much merit ; it is excellent in its general conception and descriptive power, full of brilliant gems of thought, and remarkable for its airy, graceful diction, while the novelty of the Japanese ideas pervading it gives it an additional attractiveness that should ensure its popularity with readers. Several other poems are worthy of the poet's best moods, while the inferior work is interesting, to say the least, as illustrating what a gifted writer may sometimes do, or fail to do.

*The Novel. What is it?*—By F. MARION CRAWFORD. 16mo. Royal, 108 pp. New York and London, Macmillan & Co.; Toronto, the Williamson Book Co., Ltd.

This little book makes pleasant reading to the large numbers of people interested, more or less, in questions of literature, and is of especial

value to amateurs in the art of story-writing. With all of the conclusions many readers will not wholly agree, and can give reasons for their divergence of opinion, but in the general view taken by this popular novelist on what the novel should be, and his defence of idealism against realism in fiction, wholesome story-writers will concur. The style of the discussion, it is unnecessary to say to anyone acquainted with Mr. Crawford's works, is very pleasing.

*Mistress Branican.*—A Novel, by JULES VERNE. Octavo demy. 470 pp. Toronto, Rose Publishing Co.

Jules Verne's characteristic style is so well known, that to say that this novel is in keeping with the best of his former ones is, to say nearly all that can be said. Vivacious in style, full of adventure and of the scientific imagination which has formed the chief charm of this copious writer, the tale of Mistress Branican possesses a good deal of interest, especially to boys. The book is illustrated with about 70 woodcuts.

*Nurse Elisia.*—By G. MANVILLE FENN. Octavo demy, 313 pp. Toronto, Rose Publishing Co.

This is a striking novel ; the plot is good ; the diction good ; the tone is morally wholesome. It is emphatically not a summer novel ; the faults of nearly all the characters are brought out so strongly that the general effect on the mind of a reader who wishes for simple relaxation and temporary relief from an oppressive sense of the defects of human nature is, to say the least, a little painful, but to others who do not crave for that relief the volume will be found profitable and pleasant reading. The volume is well printed on heavy paper.



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